Next Week . . . . . Auto Air Conditioning Issue

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FHA Advises Field Offices To Accept AGA, Other Ratings

But Latter Must Conform To ARI Standards

By George M. Hanning

WASHINGTON, D. C.—In a letter to field offices, the Federal Housing Administration recently relaxed its newly-imposed requirement that unitary air conditioning equipment for use in FHA-insured homes carry the Air-Conditioning & Refrigeration Institute's certification symbol.

The letter was dated March 28, 1961.

In reference to this requirement, it asked field offices to delete sub-paragraph 1004-5.1a. in General Revision No. 3 and substitute the following:

"a. The listing of Unitary Air-Conditioners in either the ARI Directory of Certified Unitary Air Conditioners, or the AGA Directory of Approved Appliances and Listed Accessories, or test and certification by a properly staffed and equipped independent testing laboratory that the equipment is in conformance with ARI Standard 210 or 250 shall be considered as evidence of compliance with the above. The

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Airtemp Adds to Air Conditioning Product Lines

DAYTON — Chrysler Corp.'s Airtemp Div. has introduced several new products, including a pair of high capacity air-cooled condensing units for split system installations (10-hp model 1212 and 15-hp model 1216), another 3-hp heat pump model, and seven basic models of air handling units.

Also announced were five basic fan coil units for custom room air conditioning.

Earlier, Airtemp announced an air-cooled condensing unit (model 1202-03) especially designed for small and medium-sized homes and for use in multi-roomed apartments. (Details on this model were published in the April 3 issue).

William Regan, sales manager for Airtemp's packaged

(Continued on Page 37, Col. 1)

Heat Pumps Pace Unitary Air Conditioner Sales In 1960

Put Nearly 2,000 In Phoenix Homes In Year

PHOENIX, Ariz.—Heat pump year-round air conditioning for homes has made tremendous strides in Phoenix in the past two years, reports F. Lupton of the Salt River Power District, which supplies electricity for the city of Phoenix.

In 1960, 2,913 installations of conventional central residential air conditioning systems were recorded by the utility, with an additional 1,945 heat pump installations installed for year-round air conditioning of residences. A total of 276 electric heat complete home heating systems also was recorded in 1960.

This compares with a total of 3,345 conventional central air conditioning systems, 1,238 heat pumps, and 226 residential electric heating systems recorded in 1959. In 1958, best estimates put the number of central residential heat pump installations at not much more than 300 units, this pointing up the rapid acceptance in the past two years.

Sales of central residential systems recorded through Feb. 17 of this year show a continuing gain by heat pumps, Lupton says. Sales of conventional central systems totaled 241 units, heat pumps 213 units, with 38 electric heat installations recorded in this period.

Installations in the Salt River Power District are believed to represent around 55 to 60% of the total potential in the greater Phoenix area.

Unitary Shipments Up 9% Over '59, ARI Finds

WASHINGTON, D. C. — Reporting that figures for total 1960 shipments of unitary air conditioners show a gain of about 9% over 1959, the Air-Conditioning & Refrigeration Institute said heat pump shipments continued to show an increase larger than the average for all other types of unitary equipment.

The 1960 total was 312,380 units, excluding coils, compared with 285,935 in 1959. It is estimated that the units reported to ARI represent more than 90% of the industry total. The figures do not include room units.

Heat pump shipments in 1960 were 41,055, compared with 35,167 in 1959, a gain of 17%. Self-contained heat pumps accounted for 27,841 of the total heat pump shipments in 1960, showing a gain of 22% over the previous year.

Summaries of the shipments by types and sizes (capacity) are on page 39.

Housing Bill Could Spark More Heating, Cooling Sales

WASHINGTON, D. C.—Home modernization sections of the housing bill recently proposed to Congress by President Kennedy may offer new opportunities to air conditioning and heating contractors, it is believed.

These sections would provide Federally insured home improvement loans at up to 6% interest to run up to 25 years. At present such loans are limited to $3,500 running for five years with interest rates up to 9.7%.

While there are no indications as yet that heating and air conditioning will be specifically covered under this program, the stimulation to home improvement by the easier terms would seemingly redound to the benefit of heating and cooling contractors.

The housing subcommittee of the Senate has reportedly already started hearings on the President's proposals, while the House subcommittee is expected to hold off hearings until the Senate completes action.

Kishbauch, Farrell Get New Posts at American-Standard

R. D. Kishbauch

John P. Farrell

NEW YORK CITY—The appointment of R. David Kishbauch as sales manager and John P. Farrell as products manager, American-Standard Air Conditioning Div., has been announced by R. J. Berkshire, vice president, marketing.

Both will make their headquarters at the division's executive offices here.

According to Berkshire, Kishbauch will take complete charge of the divisions field sales operations. He replaces H. E. Rossell, who has left the company.

Kishbauch has been with the division since its formation in 1953. Prior to his appointment, he served as midwest regional manager, eastern regional manager, and district representative in the Philadelphia area.

(Continued on Back Page, Col. 1)

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

This College Lad Will Go Far

Our campaign for all-year-round operation of schools (a program which will require air conditioning, of course) has a new sponsor.

His name is Robert W. Price. He is a brilliant first-year student at the University of Michigan, and already he's the Editor of an undergraduate publication entitled CAMPI.

This Bob Price (not to be confused with the somewhat more mature Bob Price who operates in and out of New York City) adjures his collegiate brethren:

"Attend school all year long? NEVER!!!!! This seems to be the prevalent philosophy in Ann Arbor, Mich., when the idea of year-round college is proposed.

"Just what are the merits and demerits of trimester plans? Michigan university officials seem convinced that this is the wave of the future, and now they are arranging such a system for 1962.

"They point to vastly increased applications for entrance in coming years—and the seeming impossibility of building new facilities and recruiting new teachers fast enough to keep up with demand—as the reason for their decision.

"The trimester plan has merits

(Continued on Page 8, Col. 1)

To Air Condition Housing Project

HARRISON, N. J. — Worthington Corp. announced that it has received a contract from Afgo Engineering Co., Brooklyn, to supply air conditioning units for mammoth Penn Station South, a $35 million, low income cooperative housing project under construction near Pennsylvania Station.

According to Worthington, this is the first time that a housing project of this type will be completely air conditioned.

Under joint sponsorship of the International Ladies Garment Workers Union, and United Housing Foundation, the project being built by Mutual Redevelopment Houses, Inc. calls for the construction of ten 20-story apartment houses, serving 2,820 families.

(Continued on Page 27, Col. 1)

NLRB Examiner Rules

Picketing Illegal, So Is Master Agreement

MONROE, La.—The Building & Construction Trades Council of Monroe and Vicinity has violated the National Labor Relations Act by picketing four building contractors to force them to accept a "Master Agreement" which is also in violation of the Act, Alba B. Martin, National Labor Relations Board trial examiner, has decided.

Martin has recommended that the council cease inducing or encouraging employes of the four contractors to refuse to perform services for their employers or to threaten or coerce their employers into signing the agreement.

He further recommended that the council stop these activities where their object is to force the contractors to cease doing business with subcontractors unless they, too, honored the Master Agreement.

The Master Agreement contains a condition that all employes hired under the agreement have to become members of their craft union within seven days of their employment or of the signing of the agreement.

Martin argued that proviso to section 8 (e) of the National Labor Relations Act which exempts "hot cargo" arrangements with an employer in the construction industry relating to the contracting or sub-contracting of work to be done at the construction site did not apply in this case.

He explained that the proviso continued an immunity for certain construction industry agreements that were not unlawful prior to the adoption of the 1959 hot cargo amendment.

"It permits an employer in the building and construction industry voluntarily to enter into certain agreements," Martin said. "But the proviso does not purport to exempt or immunize the building and construction unions from the prohibition of Sect. 8(b)(4)(A)."

Permaglas Names Roye

KANKAKEE, Ill. — The appointment of L. W. "Bud" Roye as Permaglas boiler marketing manager, Permaglas Div., A. O. Smith Corp., has been announced.

Southern Utilities Scrutinize Gas Turbine for Air Conditioning

NEW ORLEANS — "Gas Turbines—The New Look In Air Conditioning and Power Generation" is among subjects programmed for the Southern Gas Association's 53rd annual convention in New Orleans April 24-26.

The subject will be discussed by D. Dana Price, chief engineer, Goleman & Rolfe, during an air conditioning session at the Jung hotel on Tuesday afternoon, April 25.

Also scheduled for this session is a symposium on "What the Gas Air Conditioning Equipment Manufacturer Expects from the Utility."

Symposium participants will include William G. Wepfer, general sales manager, Arkla Air Conditioning Corp.; G. Owen Kuhen, sales manager, absorption refrigeration, Carrier Corp.; N. K. Hall, manager, Refrigeration & Air Conditioning Div., The Ready Power Co.

In addition, the air conditioning session will hear a talk by Roy a Siskin, senior research engineer, American Gas Association, on "Tomorrow's Heating Equipment — Today's Report."

The convention exhibit highlights new developments in the industry including several gas turbines, a wall furnace which uses thermoelectricity to operate a circulating fan and blower, a fuel cell prototype, several items developed by United Gas Instruments Div., an epoxy-joined line pipe display, a gas-fired infrared residential space heater, and other new developments.

●

CLEARWATER, Fla. — Gas air conditioning was the subject of two of the principal speakers at the annual sales conference of the Florida Natural Gas Association held here recently.

I. E. Rowe, director of utilization for the United Gas Corp., and chairman of the Southern Gas Association's Heating & Air Conditioning Committee, reviewed the status of gas engines and gas turbines as prime movers for power generation and air conditioning.

Rowe pointed out that the gas turbine has earned an enviable record of reliability and economical performance during the past decade and opens the door to many new applications of large, all-gas installations.

Engineers Study Gas Power

A number of prospective building owners, Rowe said, now have their engineers working on economic studies for power generation with gas turbines or gas engines, the waste heat to be recovered for low-pressure steam operated absorption refrigeration units. One such installation, using a gas turbine, has already been made in a large shopping center in Little Rock, Ark.

"Many industry executives," Rowe added, "now see the application of the gas turbine as an outstanding example of load-building on the customers' premises. In several ways, the gas turbine fits significantly into any plan for selling gas fuel to be used in large tonnage air conditioning installations."

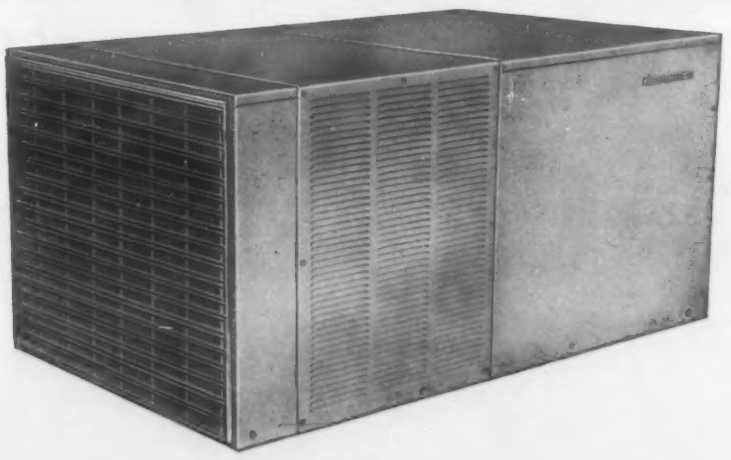
Another of the 16 nationally-known conference speakers was G. J. Tankersley, president of Western Kentucky Gas Co., and chairman of AGA's Heating & Air Conditioning Committee. Tankersley pointed out the tremendous potential gas load available to the natural gas industry in Florida by gas air conditioning.

This was the first annual sales conference of The Florida Natural Gas Association, recently reorganized to achieve maximum coordination of effort within the Florida gas industry with the advent of natural gas to the state.

PERFECTION IN PERFORMANCE

Full-rated capacity performance on the heating cycle — an exclusive Perfection feature — is guaranteed by a complete row of extra tubes on the inside coil of every Perfection Remote or Tuckaway Heat Pump. All Perfection Air Conditioners meet ARI standards for full-rated capacity. After final assembly, each and every unit (not a random sample) is factory-tested under operating conditions more severe than those actually specified by ARI. But the best test for performance is Perfection's low cost of operation your customers will enjoy. The perfect balance of all Perfection Heat Pump or Air Conditioner components gives more BTU's of heating or cooling per watt of electricity than any other comparable unit on the market today. This is your assurance that Perfection Heat Pumps and Air Conditioners deliver the kind of performance you and your customers demand. You can offer performance like this to meet any installation requirement. You have full selling flexibility with heat pumps or air conditioners, remote or tuckaway models and 2, 3, 4 and 5-ton capacities.

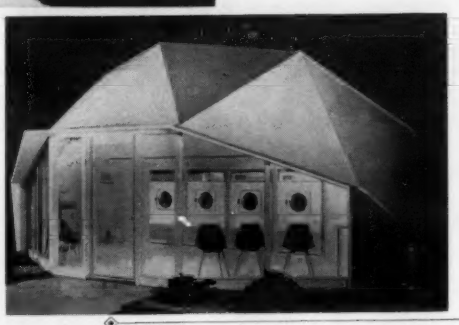
Perfectionists are a select group of distributors and dealers. Want complete details? Write Perfection Division, Hupp Corporation, 1135 Ivanhoe Road, Cleveland 10, Ohio.



PERFECTION

New-Old

PIONEER distributor William J. Hecht (r.) of Montgomery Engineering Co., Newark, N. J., demonstrates new Carrier "Micromite" compressor to brothers James and Ray Worrell, Asbury Park contractors, during presentation of Carrier line.



Dome

GEODESIC dome will mark air conditioned coin-operated service centers featuring RCA Whirlpool automatic drycleaners being marketed by Whirlpool as a package business. Buildings, supplied by Pease Woodworking Co. of Hamilton, Ohio have diameter of 26 ft, peak height of 13 ft, and floor area approximately 485 sq ft. Rear half of dome houses overhead vent system, heating and air conditioning equipment, and supplies. Typical package with six drycleaners will run about $25,000.

Signed

CONTRACTS officially designating Electrical Testing Laboratories, Inc., of New York City as administrative and testing agency for voluntary certification program of room air conditioner section, National Electrical Manufacturers Association are signed by Joseph F. Miller (l.), NEMA managing director, and H. S. Beagle, president of ETL. Certification will start with 1962 models. Under the program, NEMA will certify the cooling performance of room air conditioners produced by members and by non-members who participate in the activity.

Check-Test

OBSERVING two new direct-drive compressors being checked on test stands in the plant of the Brunner Div., Dunham-Bush, Inc. at West Hartford, Conn., are members of the Northern Connecticut chapter of the American Society of Heating, Refrigerating, and Air Conditioning Engineers.

Thinking of—

- **changing territories**
- **expanding your territory**
- **taking on new lines—**

Check the

CLASSIFIED ADS

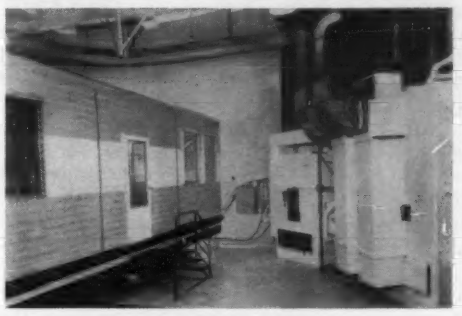
Your opportunity may be there.

News Views

On Testing Products, Markets, Performance, Reactions

Study Gas Cooling

PROF. GEORGE NIXON (C.), head of the University of Bridgeport (Conn.) mechanical engineering department, observes students studying the year-round absorption cycle on an Arkla "Sun Valley" gas air conditioning unit. The unit is a gift from the Bridgeport Gas Co. under a program instituted by Arkla Air Conditioning Corp. to encourage college-level study.



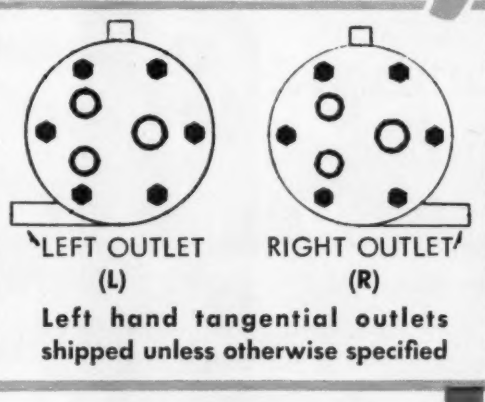
Testing Trailer

GIANT LABORATORY at Armstrong Cork Co.'s research and development center in Lancaster, Pa. tests mobile homes and materials under a wide range of temperature and humidity conditions. At right is air conditioner that alters temperatures in room from 120°F to -10° under wide range of humidity conditions. Armstrong also intends to test frozen food trailers in the building.

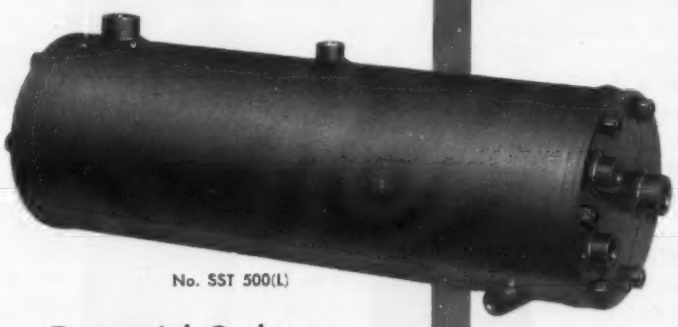
all copper WATER CHANNELS

on *all* model SST shell and tube

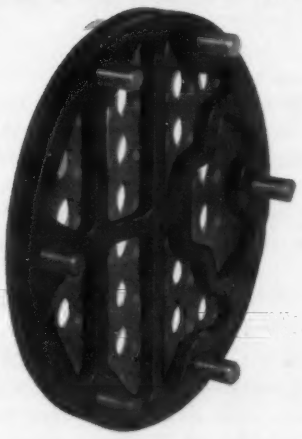
CONDENSERS



Left hand tangential outlets shipped unless otherwise specified



No. SST 500(L)



- Tangential Outlets on SST-500 Models or Larger
- Maximum Resistance to Corrosion
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Laughna Heads Airtemp Sales, Distribution

DAYTON — Frederick J. Laughna has been named as Chrysler Airtemp's director of sales and distribution, a post vacated when T. W. Kirby was promoted to vice president - marketing.

F. J. Laughna

In his new position, Laughna will have responsibility for sales and service of all air conditioning and heating products sold through regular distribution channels in the United States and Canada.

He has been with Chrysler Corp. for 28 years, the past 21 with the Airtemp Div. He was most recently manager of distribution.

Limbach Awarded Contract for Space Technology Center

PITTSBURGH—Limbach Co. announced that it has been awarded both the mechanical and curtain wall construction contracts, in excess of $4.4 million, for the new General Electric Space Technology Center at Valley Forge, Pa.

Limbach work includes a 3,000-ton refrigeration and boiler plant, and air conditioning, heating, ventilating, and plumbing throughout the laboratory buildings. The two-story laboratory and office buildings will have bands of aluminum and steel curtain wall.

Architect - engineers for the center are United Engineers & Constructors and Vincent C. Kling, both of Philadelphia, and Jackson & Moreland of Boston.

February Air Conditioner Sales Move Up In Scattered Areas, Local Sources Say

DETROIT—February air conditioner sales in some areas of the country were better than a year earlier, according to reports from utilities and associations.

PHILADELPHIA

Statistics compiled by the Electrical Association of Philadelphia show that 4,829 room air conditioners were sold by area distributors in February, compared with 4,073 in February, 1960. This brought sales for the first two months of 1961 to 9,758 units, against 8,782 in the like period of 1960.

Of the February, 1961, total, 4,661 units were sold to dealers and 168 to builders. Of the total for the first two months, 9,411 went to dealers and 347 to builders.

ST LOUIS

Union Electric Co., St. Louis, reported that air conditioner shipments in its service area by 10 distributors rose to 1,083 in February from 779 a year earlier, a gain of 39%. However, shipments for the January-February period declined to 1,635 from 2,740 in the corresponding period of 1960, a drop of 40.3%.

CLEVELAND

According to the Electrical League of Cleveland, room air conditioner shipments in Cuyahoga County reported by league member distributors for February increased 5% to 289 from 276 a year earlier. This put shipments for the first two months of 1961 32% ahead of the same period of 1960, the totals being 593 against 447.

Shipments of central residential systems, however, skidded to 9 in February from 53 in February, 1960, a decline of 83%. In the first two months of 1961, central system shipments were off 71% from 1960, totaling 22 against 77.

ST. PETERSBURG

Heat pump and air conditioning sales in the territory served by Florida Power Corp., St. Petersburg, were up in five of eight categories. A report from the utility showed these totals for February, 1961, compared with February, 1960, and (in parentheses) for the first two months of 1961 compared with the same period of 1960:

Heat pumps: central residential—72 against 106 (178 against 190); residential room units—154 against 83 (292 against 123); central commercial—23 against 14 (47 against 24); commercial room units—32 against 10 (47 against 52).

Conventional air conditioning: central residential — 85 against 64 (147 against 152); residential room units — 289 against 147 (421 against 332); central commercial—27 against 27 (63 against 58); commercial room units—11 against 13 (64 against 58).

The FPC report also showed that tons added in February totaled 1,515, up 33.5% from a year earlier. Heat pumps accounted for 543 tons (up 6%) and cooling only, 972 tons (up 56.2%).

WICHITA

In the territory served by Kansas Gas & Electric Co., Wichita, retailer sales of central air conditioners rose to 34 in February from 15 in February, 1960. Sales for the first two months of this year totaled 55 compared with 37 a year ago, a gain of 48.6%.

Room air conditioner sales in the KG&E area were up, too, totaling 81 against 63 in February, 1960. Sales in the January-February period amounted to 111, up 19.4% from the 93 units sold in the same period of 1960.

WEST PENN

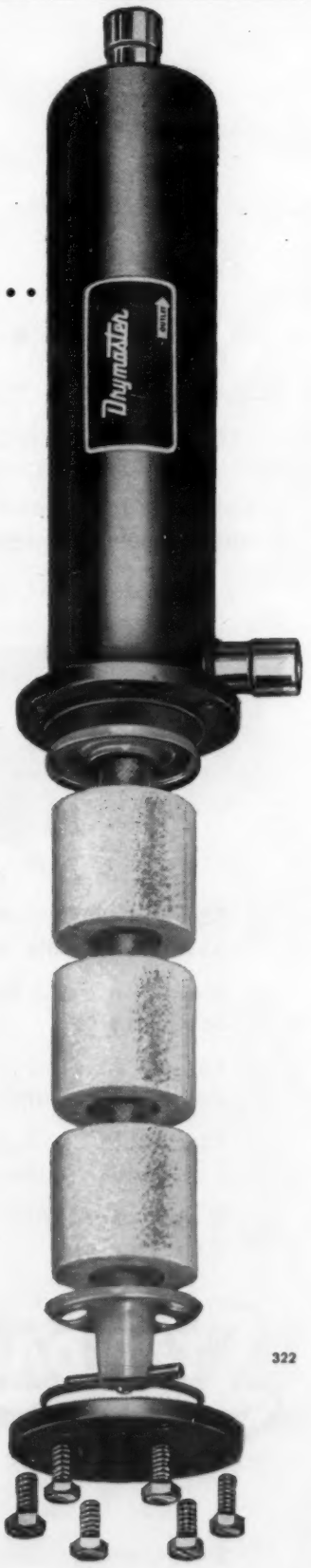
West Penn Power Co. reported that February room cooler sales by dealers in its territory totaled 14, compared with 37 in the same month of 1960. First-two-month sales dropped to 22 from 46 a year earlier.

MIAMI

A report received recently by the NEWS from Florida Power & Light Co., Miami, said air conditioners "started out like a whirlwind" in January, with an increase of 96% over January, 1960. During the same period, their percentage of the over-all sales volume increased from 8% to 16%.

The January figures were 3,888 compared with 1,987 in January, 1960.

UNSURPASSED FILTERING AND DRYING with ADDED Convenience and Economy... It's the New Refillable Type Drymaster® Filter-Drier!



The superb, balanced filtering and drying performance of the new refillable type DRYMASTER comes from HI-FI Filter Block Desiccant: These fuliy activated, pressure molded briquettes quickly remove all harmful moisture, acid, sludge and micron-size foreign particles from the refrigeration system. HI-FI Filter Block Dessicant is non-dusting, non-channeling and is virtually unequalled in moisture adsorbing capacity. Its combination surface and internal depth filtering ability is unsurpassed by any other comparably sized drier in the field today.

And the new angle-type, refillable DRYMASTER Filter-Drier gives added convenience and economy, too. Once installed, the body shell of the Drier is in for the life of the system; only the desiccant is replaced. DRYMASTER Refillable Filter-Driers are designed for 5 ton through 165 ton capacities with ½" O.D. through 2⅛" O.D. solder connections. End fittings are made of copper for easier soldering.

HI-FI Desiccant Briquettes, protected against shock by fibre glass padding, come packed in vacuum sealed cans ready to be installed quickly, easily, with no connections or joints to remake.

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1
Tripled supply of oil, now standard on all models. Gives added assurance of long, maintenance-free life.

2
Improved bearing system means same motor rating can do a bigger job, or same job with longer life.

3
New integral insulation system improves motor life and dependability; reduces noise.

4
New punching design results in up to 20 percent higher operating efficiencies.

5
Alkanex* insulation on wire provides superior resistance to heat aging, giving longer life.

6
Multi-function Surge Test adds new levels of quality control to assure design excellence is retained through the manufacturing process.

*Registered Trademark of General Electric Co.

When you use a General Electric 51-frame motor on your refrigeration or heating equipment, you're making certain that the motor is a strong link in the reliability and life of your product. Motor performance can mean the difference between profitable repeat business and customer dissatisfaction with your products.

Specify the General Electric unit-bearing, shaded-pole fan motor which gives you six advantages detailed in the cutaway above. These six added values mean the 51-frame motor is designed to match and even outlast the life of other components in your equipment.

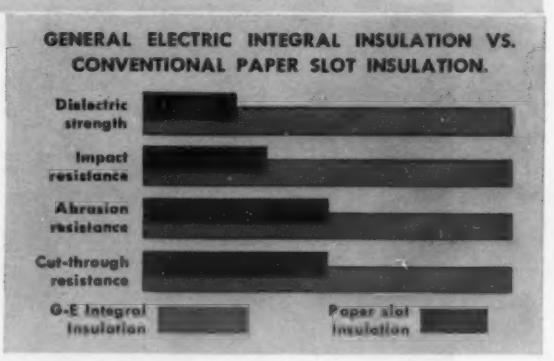
Four-pole, totally enclosed ratings are 1.5 to 16 watts, 60/50 cycles, 115 and 230 volts, single phase.

11-, 21-, AND 33-FRAME MOTORS ALSO AVAILABLE

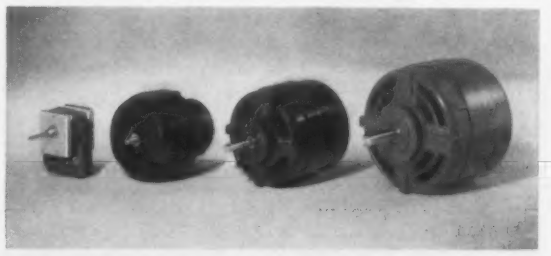
Three other General Electric motor frame sizes are also designed for *heating and refrigeration applications.* The dependable, long-life 11- and 21-frame G-E shaded-pole fan motors give you a wide application range. Four-pole, totally enclosed ratings are: 60 cycles, 115 and 230 volts, single phase, 15 mhp to 1/20 hp (11-frame) and 1/15 to 1/10 hp (21-frame). Both frame sizes have integral insulation system for longer, quieter operation, and new punching design for up to 20 percent greater operating efficiency.

Rounding out the line is the Unitized† 33-frame motor with two-pole, open ratings of 0.75 to 15 watts, 60 cycles, 115 volts, single phase. Ask your General Electric Sales Engineer for more information on these four motors and how they can be applied to your refrigeration or heating products. Or write to Section 727-03, General Electric Company, Schenectady 5, New York.

† Trademark of General Electric Co.



Superior on four important counts—that's the General Electric integral insulation system. Compared to conventional paper slot insulation, integral insulation has: four times the dielectric strength; three times the impact resistance; twice the abrasion resistance; and twice the cut-through resistance. And, unlike paper slot insulation, it is completely impervious to humidity. Integral insulation is standard on General Electric 33-, 51-, 11-, and 21-frame motors.



General Electric's complete line of shaded-pole heating and refrigeration fan motors: (l. to r.) 33-, 51-, 11-, and 21-frame.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Indian Contractor Tells How They Do It And Gives Impressions of U. S. Contractors

*By M. H. Shahani, Blue Star Engineering Co., Bombay, India**

In giving voice to some of my thoughts on my "Impressions of the Air Conditioning Business in the United States," I am aware of my limitations.

My acquaintance with your business has been brief. Besides I have not been able to contact as many contracting firms as I would have liked. Also, my visits were confined over the relatively small area of Manhattan and Philadelphia and to some extent in Chicago and St. Louis.

To begin with, let me tell you about the air conditioning business in India. Today, in India, there are half a dozen or so major contracting firms and of course many more smaller firms. Each of the larger firms represents on an exclusive basis some leading manufacturer in this country.

For instance, my company has exclusive distributorship for Worthington Corp. In other words, when we go in on a job we go in with Worthington equipment. Likewise our competition would appear on the scene with the specific brand of equipment manufactured by the American firm they represent.

Now, each of these large contracting firms operates on a nationwide basis. Within the country there are no geographical limits set for itself by any of the contractors.

No Limit To Size of Equipment Installed

Also, there are no limits to type and size of equipment. Each contractor carries out all types of installations starting with maybe a fraction of a ton and going all the way up to a central job of perhaps a couple of thousand tons.

Further, typically each contractor has his own manufacturing facilities for air handling units and cooling towers. These facilities have been built up practically since the commencement of the air conditioning business in India. It would be very impractical to import this type of equipment as shipping expenses would be quite prohibitive. Besides this, the contractors generally have their own sheet metal shop for ducting, and for that matter even air distribution grilles are manufactured in their own shop.

Each Has Service Shop

Furthermore, each contractor, has his own service department. In this respect we do not have the kind of specialization found here in the U.S.A. by virtue of also having separate exclusive organizations for the service function.

We have just one or two air conditioning consultants in the country, so that the burden for engineering the large proportion of our jobs falls on the contractors.

Because of increasing statutory restrictions in our imports brought about by a shortage of foreign exchange, we have now come to a stage where only the bare compressor and a few controls are imported from your country and practically everything else is of indigenous manufacture.

To sum up, each contracting firm operates in a wide framework. It operates throughout the country. It carries out any type and size of installation. It takes upon itself the burden for the design not only of the total plant, but also of cooling tower internals, sizing and layout of ducts and pipes, equipment layout and control systems. It has responsibility for manufacture of a large number of components and it runs its own service department.

*A talk (slightly edited) before the Refrigeration & Air Conditioning Contractors Association.

Observations on Contracting Business In U. S.

With these remarks on how we operate in India, I will come to my observations of the air conditioning contracting business in the United States.

In my opinion, a number of favorable external factors surround your business:

Bids Are On Specific Plans

1. Generally speaking the majority of quotations are submitted against plans and specifications prepared by consulting engineers. I consider this as a favorable factor for the following reasons:

The extent of engineering to be done by the contractor is lessened.

The risk of loss is reduced since the contractor is no longer fighting against indeterminate engineering costs.

The responsibility for satisfactory performance rests with the consultant if there is a design defect.

Availability of Subcontractors

2. The second favorable factor is this: the availability of large numbers of sub-contractors for plumbing, sheet metal work, complete control systems and suppliers of complete cooling towers and air handling units makes it possible for air conditioning contractors in many cases to operate without elaborate shops of their own.

3. Because of the element of severe competition, contractors are generally constrained to find their own niche in the market.

They can, therefore, organize themselves better in the area and the type of work in which they can be most efficient.

Standardization

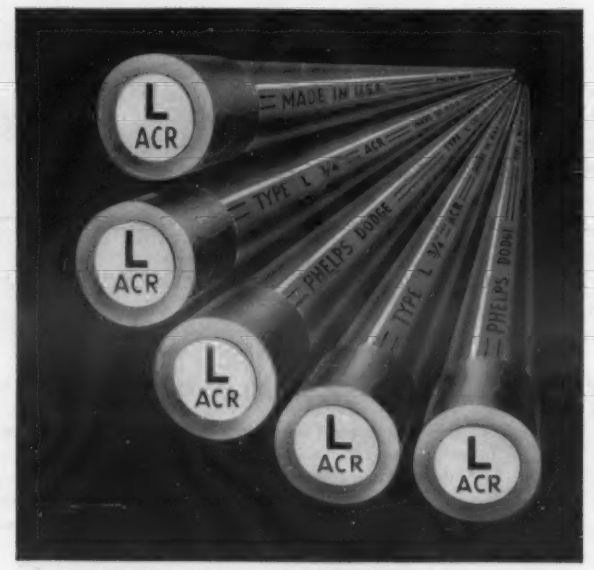
4. Due to the need for handling large volumes of work in relatively short periods of time, the extent of day to day innovation is reduced. This brings in its wake a sort of standardization of the layouts of the job in a given geographical area and over a period of time. This standardization in a very large way tends to simplify the work

WHY YOU SHOULD SPECIFY

Phelps Dodge Copper Refrigeration Tube

The Famous Mine-to-Market Quality Line!

1 FINEST QUALITY CONTROL. Phelps Dodge refrigeration tube is carefully controlled for quality throughout fabrication, rigorously tested before being packaged to assure finest tube properties and lasting quality in service.



2 COLOR-CODED ACR TUBE. Phelps Dodge ACR tube is specially cleaned for refrigeration use. Extra-long coded end caps are your assurance of factory-clean tube at job site. Tube is color coded "ACR" for your protection.

3 NEW P-D PAK CARTON. Reel-type design of convenient new carton allows tube to be rolled or paid out quickly on job. Color-coded identification tape seals carton for protection, makes opening easy.

Quality tube sold the quality way—through authorized refrigeration wholesalers!

ASSOCIATE MEMBER

PHELPS DODGE COPPER PRODUCTS CORPORATION

New York, N.Y. • Los Angeles, Calif.

P D

of the air conditioning contractor, making it possible for him to handle more volume.

There are some other favorable factors, however, which I do not consider as external because the credit for these goes largely to the contractor.

1. The air conditioning contractors, like all other industries in this country, have formed themselves into very strong associations. The advantages of these associations to the contractors are greater than they appear to be:

(a) The associations permit the contractors to work in a climate that removed doubts with regard to many matters. There is standardization throughout the industry of such details as terms of payment, warranty obligations, free service, standard contract agreements, and the like.

(b) It is possible for contractors to safeguard their common interests through associations.

(c) A considerable amount of statistical data and other valuable information is available to the contractors through association publications.

Cooperation Between Competitive Firms

2. Another interesting factor for which the credit goes to the contractor, is his capacity to get along famously with his own competition. My reference here is to the joint ventures between contractors by which typically two contractors jointly take up a contract and pool their resources and share the profit equally. Such a thing is as yet entirely undreamt of in my industry at home.

It would, indeed, be a very smart thing to cooperate with others for our own larger interests and benefits and yet strangely, very few of us recognize this need.

Unfavorable Factors

So much for the favorable factors that prevail. No doubt there are the factors also, on the other side of the scale.

1. I would say that the greatest problem that some of the air conditioning contractors have is this. The air conditioning contractor has to bid to several general contractors for the same job not knowing which one of them is to get the job. Besides he has to gamble on price and try and get a close-out with a general contractor or else he would be at a competitive disadvantage after the general contractor has actually received the job.

In extreme cases, they try to make friends with the general contractor and get an idea of the prices which their competition is quoting. In this process sometimes their own estimates of cost take second place to the estimation of their competition.

Besides, this method of operation is probably more expensive for the owner, as he is paying to the general contractor his profit on the air conditioning and heating part of the job over and above the price of the air conditioning contractor.

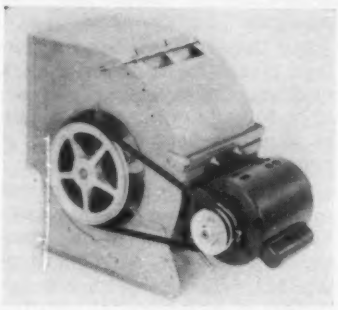
Well, so much for my views on your side of the picture. But, finally, I would like to compliment you on the fantastic strides which your industry has made with regard to the sizes of some of your air conditioning jobs. I understand that the upper limit is now around 10,000 tons. Also I would like to comment on the excellent distribution pattern that has been woven out in your industry.

I am now almost at an end of my study tour in this wonderful country. Pretty soon I will go back home and people will ask me what are some of the key things, the outstanding points that I have learned in America.

There is much that I will say, but I would think that the one outstanding propelling force is man's self-interest. It is necessary for us to recognize our self-interest and also the self-interest of others. It is the incentive before man and his profit motive that takes him ahead. With this recognition of the need for incentive for ourselves and for others and through provision of adequate rewards, progress must surely come.

Lau Damper Regulates Air Volume Without Changing Speed of Motor

DAYTON — A new type of volume regulating damper for adjusting combination residential heating and cooling systems is being introduced by The Lau Blower Co. here.



Lau engineers say the patented device is a major step in simplifying the control of blower air delivery without changes in motor speed.

Called the "Controllaire," the device is an integral part of a blower assembly housing. In operation, it is opened or closed to adjust air volume.

"However, unlike conventional dampers, it is so designed to permit air redirected by the damper to flow out of the blower housing," the company said. "This is recirculated within the blower compartment.

"With this method, the blower motor remains at a constant speed, no matter what setting the damper is placed. This is particularly true with direct drive motors. The Controllaire works equally well on belt driven blowers.

"Since the new air controller keeps a motor at constant speed, the installation of a voltage reducing device such as a reactor is completely eliminated. Normally, a reactor has been required to slow a motor when air delivery needs to be reduced."

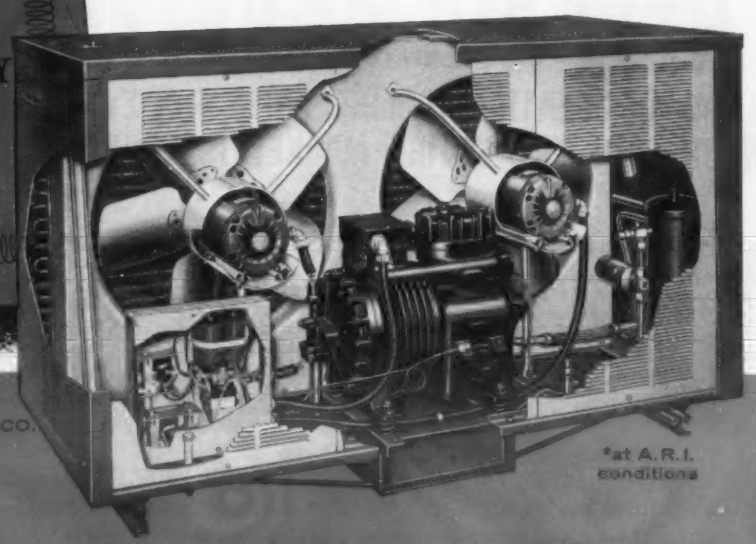
Lau engineers also claim that less noise will occur within a residential combination system due to the constant motor speed. Although the same amount of air enters the blower, only that percentage required within the home leaves it. The remainder is redirected by the damper.

Manually controlled, the Controllaire can be installed by furnace or air conditioning manufacturers with various types of knob or other controls mounted on the exterior unit housing. This will permit heating contractors to adjust air volume to a home's particular needs.

Initially, Lau is incorporating the Controllaire into 9 and 10-in.-diameter direct-drive blower assemblies and 9, 10, and 12-in.-diameter belt-drive blowers.

Now, Coleman POLAR-PRINCE air conditioning – 93,000 BTU/hr*

The World's Only Bonded Air Conditioning



BOND ISSUED BY TRAVELERS INDEMNITY CO. HARTFORD, CONN.

*at A.R.I. conditions

Bonded . . . with capacity over 7½ tons to help you outsell them all!

A new 7½-plus ton unit now joins Coleman's famous Polar-Prince line of add-on cooling. Opens a whole new field of sizeable commercial and residential applications. Out-performs them all combined with the new Coleman Uni-Cooler which can be installed vertically or suspended horizontally.

And there's sales-power behind it to match the horse-power in it. Like other Polar-Prince units, from 2 tons up, it's backed by Coleman's exclusive warranty bond. Ask your Coleman distributor or write

The Coleman Company, Inc., Wichita 1, Kansas

Coleman builds the most complete and only bonded line of heating and air conditioning. Investigate!

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1)

on other points as well. Students will finish college in three years instead of four, and gain a year of working at college graduate pay, instead of being forced to accept any old cheap job during the summer.

"This seems to answer the major objection raised by students, to wit: 'How can I afford to attend college if I must go full time? I have to work to pay for my education.'

"Another objection is that even if the graduate makes more money in the year after he gets out of school, he is strapped for funds while he is getting through.

"The answer lies in government and business loans which would be repayable after graduation. Obviously such loans must be made more plentiful and should not be based solely on academic averages.

"It is folly to allow our college plants to lie idle during a quarter of the year. Likewise, it is folly to waste the talents of our teachers over such a period of time.

Another argument against all-year education is that it is "too hot" to work in the summer. The answer. Air Conditioning!!

"Air conditioning of existing facilities would cost but a fraction of the price of constructing new facilities — which would probably be air conditioned anyway!

"This leads to the final argument against full-time collegiate schedules—the emotional argument that 'I couldn't do without my summer vacations.' The best refutation of this is reason.

"If American young men are unwilling to apply themselves and learn continuously, the value of education itself will be lost. If we persist in this view that education is impossible during the summer, there will be a lessening of American greatness."

Inside-Outside Dope predicts that this young man, Robert W. Price, has a great future in store for him.

Campus Humor(?)

From the same University of Michigan publication we lift this alleged joke:

Two men were out in a boat fishing. Between them they had three cigarettes, but no matches. How did they light the cigarettes? Quite simple, really.

They threw one cigarette overboard, which made the boat a cigarette lighter.

Confucius Say

Keeth Heating & Air Conditioning
Plymouth, Michigan

Editor:

I enjoyed the enclosed clipping, and felt you might be able to use it in your *Inside-Outside Dope* column.

DONALD A. KEETH

Far from the stern Marxist incentives that Peiping devises for the people of China, managing director of a Chinese bank in southern Malaya has issued the following Ten Commandments for his employes:

1. Don't lie. It wastes my time and yours. I am sure to catch you in the end.

2. Watch your work and not the clock. A long day's work makes a long day short, and a short day's work makes my face long.

3. Give me more than I expect, and I will pay you more than you expect. I can afford to increase your pay if you increase my profits.

4. Keep out of debt. You owe so much to yourself that you cannot afford to owe anybody else.

5. Dishonesty is never an accident.

6. Mind your own business, and in time you will have a business of your own to mind.

7. Don't do anything here that hurts your self-respect. The employe who is capable to stealing for me is capable to stealing from me.

8. It's none of my business what you do at night, but if dissipation affects what you do the next day, you will die young.

9. Don't tell me what I would like to hear, but what I ought to hear. I don't want a valet for my vanity.

10. Don't worry if I criticize you. If you are worth correcting you are worth keeping.

Stories of the Week

Neighbor of ours, a doctor, submits this correspondence:

Dear Doctor:

My husband used to be a contented, happy family man, an ideal mate, and father. Since consulting you, he has become restless, flirtatious, critical of my housekeeping and our children, an ogre about bills, vain, arrogant and, I suspect, a woman chaser. It is my belief that you have been giving him reinvigoration hormone shots which have changed his personality.

MRS. A. JONES

Dear Mrs. Jones: (he replied):

I have not been giving your husband shots of any kind. I have fitted him with contact lenses.

DR. SHELBE NAMELESS

Commenting on Ohio legislation which would require that editorials be signed, the *Chicago Daily News* suggested that such an editorial credit line might evolve like this:

"Idea by Smith; doctrine evolved in consultation with Jones, Roe, Doe, and Poe; first draft by Smith; interlineations by Jones; revisions by Poe; corrections by Moe; typographical errors by Joe; presswork by Hoe; Smith's suit by Hart, Schaffner & Marx."

Philosophy of the Week

"Before I married," autobiographied Lord Rochester, "I had six theories about bringing up children.

"Now I have six children and no theories."

Thoughts for the Week

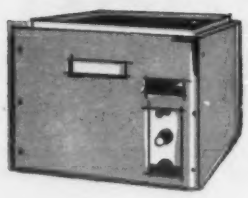
People are lonely because they build walls instead of bridges.—JOSEPH FORT NEWTON.

Nine-tenths of the serious controveries which arise in life result from misunderstanding, from one man not knowing the facts which to the other man seem important, or otherwise failing to appreciate his point of view.—LOUIS D. BRANDEIS.

GM Delco ANNOUNCES

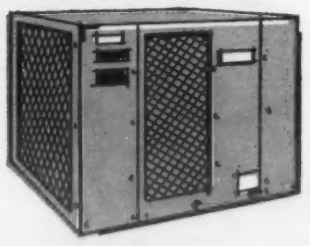
A NEW AIR CONDITIONING LINE

CENTRAL RESIDENTIAL COOLING UNITS FOR EVERY TYPE AND SIZE OF HOME, NEW OR OLD! THE ENTIRE MARKET IS YOURS WITH THE GM-DELCO LINE!



COOLING COIL (EVAPORATOR) UNIT
Now there's a Delco-engineered air conditioning unit to fit any Delco furnace. Installation is quick and simple. Also, you can convert your customer's present forced air furnace to central air conditioning with just the right GM-Delco unit to make it easy, practical and profitable!

REMOTE CONDENSER UNIT
The GM-DELCO line includes attractive, weatherproof condensing units in sizes to meet a wide range of needs. Durably built for outdoor installation and designed for the most efficient operation. Ratings from 22,000 to 56,000 BTU/HR. Maximum over-all dimensions—Height 28¾", Width 48⅝", Length 31⅞".



SELF-CONTAINED SYSTEMS
The GM-DELCO line offers you completely self-contained cooling units. Shown is a type for use with hot water, steam or other heating systems without duct work. Easily installed in attic or crawl space with inexpensive duct work.

THE GM-DELCO HEAT PUMP
The GM-DELCO Heat Pump (not shown) is available as a self-contained or split system and provides both heating and cooling as required.

A COMPLETE LINE OF AIR CONDITIONING, HEAT PUMPS, FURNACES, BOILERS AND WATER HEATERS TO MEET ALL YOUR REQUIREMENTS.

GM Delco 365 CONDITIONAIR

DELCO APPLIANCE DIVISION, GENERAL MOTORS CORPORATION, ROCHESTER 1, N.Y.

See $2-Billion Bonanza for Taxpayers

Gas Air Conditioned School Can Be Built For Less Than Conventional School—AGA

NEW YORK CITY—A 2,300-student air conditioned compact school with natural gas as its only source of power can be built for approximately $2.3 million—about 16% less than the present conventional type of the same size without air conditioning, according to a new gas industry research study.

The study, just completed by Golemon & Rolfe, Houston, Texas, engineering and architectural firm, was cited by the American Gas Association in announcing "a revolutionary plan for producing low-cost energy in the modern school."

The AGA declared that "a $2-billion bonanza for the nation's taxpayers is possible in the next 10 years." This whopping tax savings can be realized, according to AGA, by installing natural gas turbines in new-type compact schools built to accommodate increased secondary school enrollment during the coming decade.

Speaking at a seminar on changing curricula, school construction, and operating costs, AGA's Managing Director C. S. Stackpole said substantial economies in owning and operating schools are promised in the research study.

An estimated $9½ billion would be needed in the next 10 years to build sufficient schools of present design and standards, he said, referring to U. S. Office of Education predictions that secondary school enrollment will increase by some 8½ million in the next 10 years.

16% Cost Reduction Adds Up to $1.5

"A 16% cost reduction under the new plan adds up to $1.5 billion," it was pointed out. "Lower first costs in construction will result in savings of $45 million in insurance and $32 million in reduced interest on bonded indebtedness.

"From the standpoint of maintenance and operation, an estimated $670 million can be saved with gas-powered schools when compared to schools using conventional energy.

"One of the nation's major taxpayers itself ($944 million in Federal, state, and local taxes in 1959), the natural gas industry initiated the research study for several reasons, including (a) the desire to help build better schools in the thousands of communities it serves, (b) to help provide substantial relief from mounting tax burdens, and (c) to demonstrate the merits of using natural gas as the sole source of low-cost energy in schools."

Conclusions of the report were presented recently for the first time by D. Dana Price, chief engineer for Golemon & Rolfe on the seminar program which also featured two prominent educators taking "A New Look at New Schools."

J. Lloyd Trump, associate secretary, National Association of Secondary-School Principals, Washington, D. C., called for careful long-range planning for tomorrow's schools. Many uneconomic procedures must be eliminated to offset some of the future added costs.

Summer Closing Seen As Uneconomical

Among these he cited: using the time and energies of professional teachers for sub-professional, clerical, and policing activities; organizing all instruction, regardless of type and purpose, in the same-sized classes; using teacher and student time more than desirable to produce community entertainment beyond that required by reasonable educational goals; and keeping school buildings closed in late afternoon, evening and Saturday hours, and for several weeks in the summer.

Acceptance of the new-type compact school to help meet the demands of a fast-growing student enrollment was described by Joseph J. Vincent, superintendent of South Park Independent School District, Beaumont, Texas. Such a school is being built in his district, Vincent said, to get more and better classrooms for less money.

This approach has been hailed by taxpayers, he said, because five bond issues totalling $11½ million were needed between 1947 and 1959—each time winning by a progressively closer vote as indication of growing concern over mounting taxes.

Price described the gas turbine as a "stationary cousin of the aircraft jet engine." Among advantages of the gas turbine to meet all energy requirements of the modern school, he cited:

—It drives an electrical generator to provide high frequency power for better lighting and 60-cycle power for motors and convenience outlets.

—Its exhaust heat can be saved, running it through a waste heat boiler to make steam or heat water. The steam can be used to run an absorption air conditioning system to heat water for showers and kitchens, and for steam cooking.

—It provides direct heating for various purposes.

The all-gas air conditioned school of compact design is estimated to cost $468,000 less to build than the conventional non-air conditioned school — and $6,362 a year less to operate, the research report points out.

MIGHTY MITE
PROTECTS MOTORS
Against
OVERLOADS
OVER VOLTAGE
UNDER VOLTAGE

MIGHTY MITE MOTOR PROTECTORS

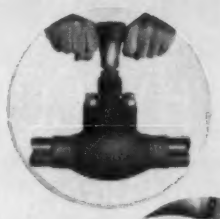
MECHANICAL INDUSTRIES PRODUCTION CO.
223 Ash Street Akron, Ohio

HENRY VALVE CO.
CONTROLLING FLOW SINCE 1914

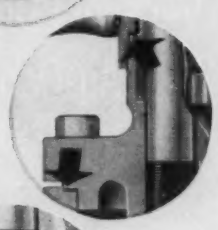
WING CAP SHUT-OFF VALVES
Globe and Angle Types with Bolted Bonnet and Full Capacity Flow

Henry offers the most complete range of sizes and types in the industry. Quality engineering, features of design, proven performance and adaptability to the most exacting specifications and diversified applications have made Henry Wing Cap Valves preferred by architects, consulting engineers, contractors and service men.

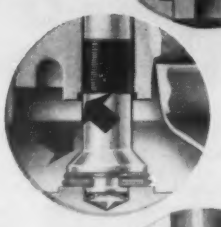
WING CAP SEAL
With Built-in Socket Wrench. For Ease and Convenience in Operating Valve Stem.



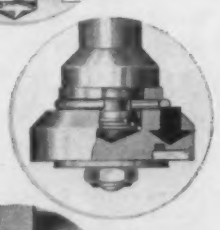
PROTECTIVE GASKETS
Fully Retained. Prevent Loss of Expensive Refrigerant.



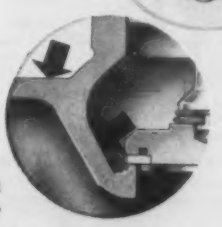
BACK SEATING STEM
Can Be Repacked Under Pressure.



NYLON SEAT DISC
Replaceable, Non-rotating, Self-aligning, Chatterproof.



HEAVY WALL & WEB
Choice of Bronze Alloy or Semi-steel.



Bronze alloy valves have integral O.D.S. connections. Ductile iron valves available with integral F.P.T. connections; flanged type available with brass O.D.S. or steel butt-weld adapters.

HENRY VALVE COMPANY
For Refrigeration, Air Conditioning and Industrial Applications
MELROSE PARK, ILLINOIS, U.S.A. CABLE: HEVALCO, MELROSE PARK, ILL.

Refrigerant Monitoring System Protects Hotel Air Conditioning Plant from 'Human Error'

EXPLAINING THE OPERATION of the Televance sentry alarm which will monitor the operation of a 500-ton air conditioning system in the Statler Hilton hotel in Detroit, Art Berryman, vice president for sales of Televance Corp. (r.) tells P. Svalya, the hotel's chief engineer, what the alarm will detect. He points to the control unit.

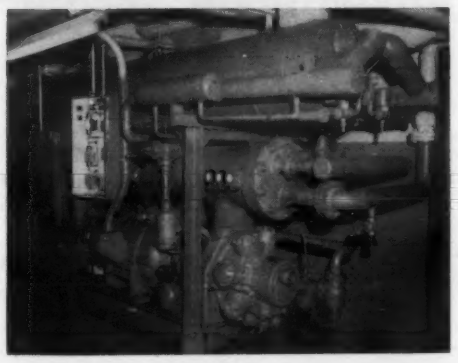
By George M. Hanning

DETROIT — A monitoring system designed to give warning of refrigerant troubles far enough in advance to prevent costly breakdowns was installed recently by the Statler Hilton hotel here on its 500-ton central air conditioning system.

P. Svalya, chief engineer for the hotel, sees his new Televance electronic sentry as a guard against human error—the busy engineer who is supposed to check the equipment periodically, but, in his hurry, fails to note an abnormnal condition.

"In machinery that moves as fast as these compressors," Svalya noted, "things happen fast. If you aren't right on top of it to take corrective action, a lot of damage can be done.

"The electronic sentry won't overlook anything and it will report only when something goes wrong."



ONE OF THE FOUR 125-ton liquid chillers that provide cooling and heating for the hotel's guest rooms. Sensing probe is put into liquid line behind the unit and connected with control unit shown in picture at left.

The Televance Sentry, made by Televance Corp. of St. Louis, is made up of two main components, an electronic sensing probe and an electronic control unit, which provides an alarm signal. In this case the alarm is a red light remotely installed in the chief engineer's office.

The refrigeration system installed in 1956 consists of four packaged 125-ton Acme liquid chillers that provide both heating and cooling for 696 of the hotel's 938 guest room coolers. They are powered by four 110-ton monochlorodifluoromethane (R-22) Airtemp seven-cylinder radial compressors.

At this writing, only one of the four compressors is protected by the Televance sentry. However, the other three will be connected to the control unit as soon as additional modules arrive, Svalya said.

Sensing Probe In Liquid Line

The sentry's sensing probe assembly is located in a tee in a horizontal section of the liquid line. The electronic sensing element, a thermistor, is part of the probe assembly. It is located in a pocket or trap above the top portion of the liquid refrigeration line.

The thermistor probe changes its electrical resistance in accordance with the medium, liquid or gas, which surrounds it in the trap. In other words, it electronically differentiates between liquid and gas surrounding the probe.

The electrical resistance of a thermistor is inversely proportional to its temperature. At low temperature, the resistance is high. At higher temperature, the resistance is low.

Thus, when liquid surrounds the probe, as it would if the system were properly charged and operating satisfactorily, the small amount of heat produced by the thermistor is easily dissipated and it is kept cool.

But when gas surrounds the probe, the temperature rises, thus lowering the resistance. These changes in probe temperature resulting in changing resistances are detected by the control unit to provide an alarm signal.

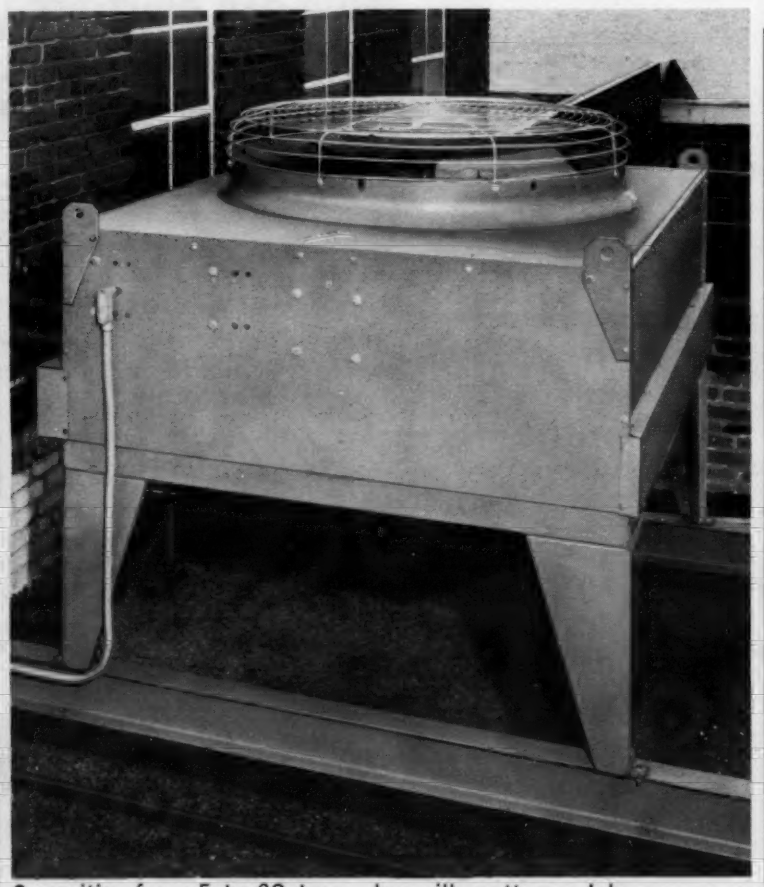
How System Works

Art Berryman, vice president in charge of sales for Televance, explained that in the Statler Hilton job, the step controller contacts which control the No. 1 solenoid (See Diagram A), which is the last to close, was selected as the compressor motor controlling device. The step controller is operated by a modulating motor which is controlled by a thermostat.

As long as the No. 1 solenoid is open, the system will call for refrigeration and the compressor should run. As long as the step controller contacts are closed, voltage should be available to the sentry control circuit—or the sentry should be activated.

Therefore, if the oil pressure safety switch, the delay timer contacts, the starter reset

End Sight, Sound and Water Problems with LARKIN ZEPHYRCON Vertical Discharge Air-Cooled Condensers



Capacities from 5 to 60 tons—low silhouette models

OUTSTANDING FEATURES

- Patented LARKIN cross-fin coil—aluminum fins bonded to staggered copper tubes.
- Circuiting designed for counter-flow operation.
- Low-speed fans, dynamically balanced, assure top efficiency, quiet operation.
- Each fan has two matched v-belts.
- Fan shaft mounted in ball bearing pillow blocks—permanently lubricated and sealed.
- Heavy-duty motors, drip-proof, NEMA frame, ball bearing, mounted securely on adjustable base within unit housing, protected from weather.
- Removable service door—easy access to motor and belts.
- Metal prepared through five-stage Oakite Cryscoat phosphating process.
- Primed with epoxy resin; finished with thermo-setting, plastic-base enamel—a triazine resin. Long-lasting, water-and-alkali-resistant.
- Safety-spiral wire guard heavily zinc-plated and Iridite-dipped for maximum corrosion resistance.
- Multiple circuiting available when specified.

Vertical air discharge LARKIN Zephyrcons, BFC-V Models, can be located anywhere regardless of prevailing winds. Noise is kept to a minimum because air discharge is skyward. Low silhouette does not detract from the general appearance of a building.

Heavy eye-bolts on all units facilitate lifting.

These units are built to take severe punishment from the elements in all climate conditions. Basic design LARKIN Zephyrcon air-cooled condensers have proved successful in thousands of installations throughout the world.

Write for Bulletin BFC 61, or see your wholesaler

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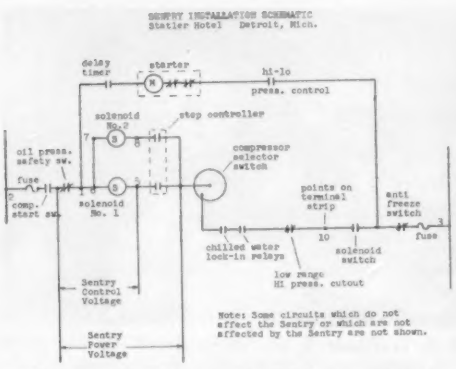


DIAGRAM A—This is how the Televance system is wired to protect the air conditioning system at the Statler Hilton hotel in Detroit.

VIEW OF THE EQUIPMENT room that will soon be protected by Televance. The new alarm system will protect against human error in detecting signs of trouble and will warn far enough in advance to prevent costly repairs, Svalya believes.

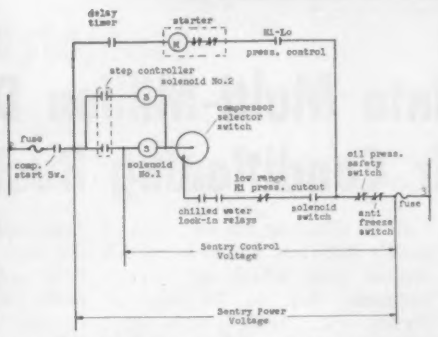


DIAGRAM B—This is how controls could have been rewired and how the sentry could have been connected so as to signal, by the red trouble light coming on instead of the 'Power On' light going off, an open in the circuit between the selector switch and the fuse connected to Point 3.

switches, or the Hi-lo pressure control open up while the step controller contacts are calling for refrigeration, this condition will be signalled by the red trouble light coming on.

"The red light will come on," Berryman explained, "because gas will form in the liquid line without the compressor to maintain saturation pressure. The presence of gas is detected by the sentry sensing probe."

Berryman explained to Svalya, just what his sentry system should tell him, as wired in Diagram A.

"It should signal," Berryman said, "through the red trouble indicator light, any condition causing gas to form in the liquid line at a time it shouldn't be there.

"Gas will have to be present for at least three minutes and in sufficient quantity to justify a signal before a signal will be given.

Won't Give False Signals

"The sentry will not give false signals at the beginning of each cycle when it is normal for gas to appear in the liquid line. The sentry has built-in time delay relays which deactivate it until saturation pressure or a solid liquid head is established.

"Some of the conditions which will cause gas to form in the liquid line and can be signaled by the sentry are: a refrigerant shortage due to an improper charge or a leak, badly flooding expansion valves, dirty filters, or any condition which might cause excessive evaporator icing, such as motor failure or broken belts on the air handling section, broken compressor discharge valves, or flash gas.

"Other troubles it should signal through the red trouble light are:

"(a) A power failure in L_1 of your compressor motor supply voltage.

"(b) If either of your compressor motor starter resets opens.

"(c) If your oil pressure fails and the contacts open on your oil pressure safety switch.

"(d) If your delay timer, your starter contacts, or starter holding coil prove faulty and prevent the compressor from running while the other controls were calling for refrigeration.

"(e) If you cut out on high head pressure, providing your high pressure control is a manual reset type.

"(f) If your low pressure control is defective."

Berryman continued, "In addition, your sentry will signal the following troubles by the 'Power On' light going out while the compressor start switch and solenoid valve manual switch contacts are closed.

"The 'Power On' light should be on at all times except when the system is shut down by the compressor start switch or solenoid valve manual switch.

"Any difficulty with the chilled water pump or cooling tower system that might cause either of the 4PST relays to open.

"Open contacts on your Penn 270AP20 cut out.

"Open contacts on your anti-freeze switch.

"A power failure at L_2 or L_3 of your compressor voltage.

"A blown control circuit fuse in your control panel box."

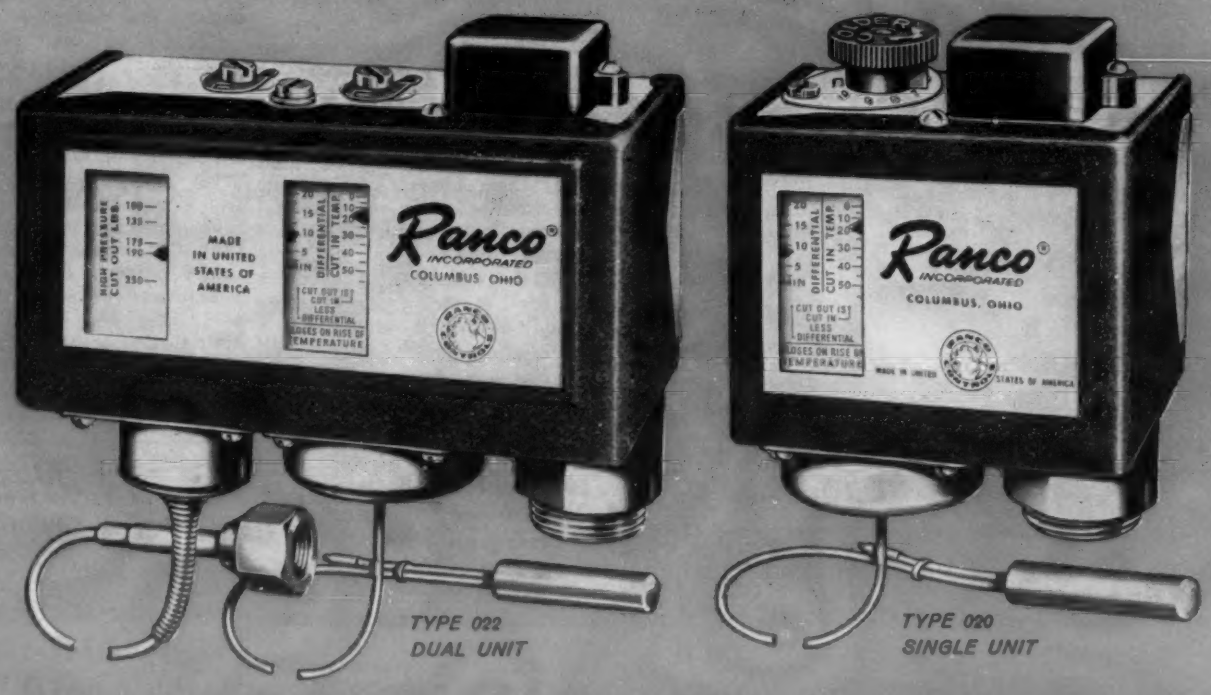
Berryman pointed out that on this particular installation, the Hi-lo pressure control could have been selected as the motor controlling device and the sentry could have been wired around this control so as to signal a refrigerant shortage or other malfunctions which might cause gas to appear in the liquid line during the running cycle.

Wouldn't Be as Useful

"However," he said, "using the Hi-lo pressure control as the motor controlling device would not have permitted the sentry to signal electrical malfunctions in as many places as the method of connection shown by the schematic (A).

"An open in the circuit between the compressor selector switch and point 3, when the compressor start switch is on, would be signaled by the sentry 'Power On' light going out. A blown fuse might also be indicated in this manner."

dependable
TWO POLE
switching



Ranco Double Pole, Single Throw "O" Type Commercial Controls, designed for a variety of two pole switching jobs, provide additional general and special applications in commercial air conditioning and refrigeration.

Single and dual unit types in series 6000 and 7000 provide a double break for single-phase operation, simultaneous switching of two circuits, or switching two lines of a three-phase circuit.

Features generally duplicate those on single pole series for low-pressure, high-pressure, dual-pressure and dual-temperature operation. Variations include fixed and adjustable differentials, operation on rise or drop in pressure or temperature, with or without manual reset, cut-out and cut-in ranges, safety limit stop on high pressure range. Available from your local wholesaler.

3 Types in Each Series

TYPE 020—Single unit in low pressure or temperature. Contacts open on decrease. Automatic or manual reset. Manual start and on-off lever (on temperature).

TYPE 021—Single unit in high pressure or temperature. Contacts open on increase. Automatic on both, manual reset on pressure.

TYPE 022—Dual unit in combinations of high pressure with low pressure, or with temperature. Contacts open on increase of high pressure, decrease of low pressure or temperature. Automatic on all or manual reset on high and low pressure combination. Safety limit stop on high pressure.

RANCO CONTROLS
Ranco INCORPORATED
COLUMBUS 1, OHIO
IN CANADA: RANCO CONTROLS, CANADA, LTD., TORONTO 18, ONTARIO

Profile of Success

$50 Parlayed Into Multi-Million Dollar Heating and Air Conditioning Business (1)

IN 1945 J. C. Pressly (r) started with a capital of $50; today he and his son (l) head up a multi-million dollar heating and air conditioning business in St. Petersburg, Fla.

Even allowing for 16 years of steady inflation, $50 is not much capital with which to start a business. But, at 10 a.m. on March 12, 1945, with that amount as a deposit, J. C. Pressly of St. Petersburg, Fla., decided to buy out a local sheet metal shop.

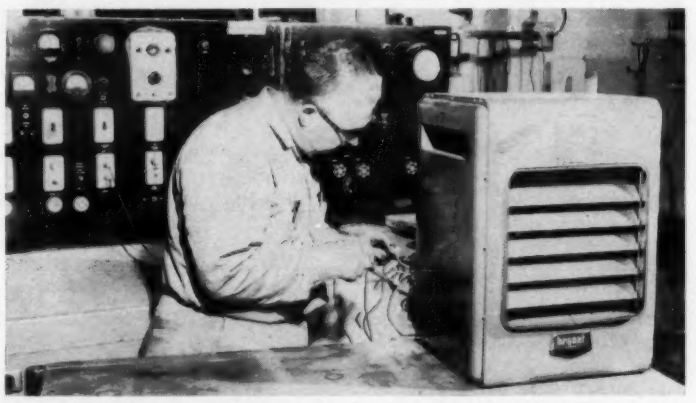
"By 10:30 I had borrowed the money from the bank and taken possession of the building," Pressly recalls. "By 11:30 I had sold $14,000 worth of contracts and had collected $7,000 in deposits—all based on 70 tons of metal which the former owner had accumulated from a war allotment.

"By 1 p.m. I had hired six experienced sheet metal workers and we got started on our first contracts. This was the start of our business — J. C. Pressly & Co. — which, in the intervening years, has grown to a multi-million dollar operation."

Now reportedly doing a large percentage of the installation of heating and air conditioning in Pinellas County, "the fastest growing county in Florida," Pressly handles 50-60 separate installations a day plus 100-150 service calls. Five technicians are kept busy full time servicing 40,000 units.

To handle the load efficiently, Pressly dispatchers route the servicemen by two-way radio, beginning in the morning with calls nearest the men's homes. Sometime during the day they are routed back to the plant where they check in to get supplies.

THE CONTROL CENTER OF J. C. Pressly & Co., shown above, handles up to 150 installation and service calls a day during peak periods.



DOUG CRAWFORD is in charge of the Pressly testing laboratory. The lab tests one or two units from each shipment of heating or air conditioning equipment received to predetermine any possible mechanical trouble.

Runs Own Laboratory For Testing Equipment

As an added incentive to servicemen, a 5% commission is given for each bill the servicemen collect on the job at its completion. Pressly finds it necessary to charge 50 cents more per job if a customer is sent an invoice.

In charge of the testing laboratory is Doug Crawford, who has been with Pressly since the firm started. Crawford picks one or two units out of each new shipment received and pulls them apart to check out any innovation or possible mechanical trouble.

"This way, when we have 1,000 units installed, they don't all need servicing at the same time," Crawford explains.

Crawford also makes specific recommendations to manufacturers as the result of these extensive original application studies.

50-50 Balance Between Consumer Sales and Contractor Sales

Pressly, a long-time dealer for Bryant Mfg. Co. of Indianapolis and other manufacturers, maintains a 50-50 balance between direct sales to consumers and contractor sales.

In 1959 the balance shifted 80-20 in favor of new home installations, but with last year's slow housing starts reaching into 1961, Pressly forecasts a 60-40 split.

In spite of the over-all falloff in volume last year, the Pressly company held its own this year by increasing its normal volume of direct sales to consumers.

"When you shift from new work to old work," Pressly observes, "you need more people. A crew working on new construction can install four or five furnaces per week, while in an old house, where you can never tell what you'll run into, a crew can install only one."

One of the results of the recent "rolling adjustment" toward direct consumer sales has been Pressly's decision to use advertising as a sales stimulus.

"When you slow down on the turnover of your money in Florida," remarks Pressly, "you must inevitably slow down the volume of business—or get into serious trouble. Actually, when you have a limited amount of capital, you can grow too fast.

"This is our main reason for emphasizing retail sales over commercial. There is little credit risk in the home buyer, as opposed to the tenuous situations which develop when we carry a great deal of money on the books with contractors."

St. Petersburg is unusual in that it is primarily a haven for senior citizens. In the last ten years over 85% of all homes sold have been purchased by retired people. Pressly has a standing policy of extending up to $2,000 in credit to retired homeowners — and has yet to lose a nickel on a bad dept.

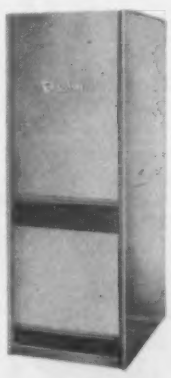
"Most of these people are responsible folks who have saved all their lives, and are able to pay half, or even more, down on their houses," Pressly says. "They are frugal and know the value of money; they like to pay cash. In fact, only one in a hundred retail sales to these people is financed."

One of Florida's big attractions to prospective homeowners is the Homestead Exemption law. Under it, property is evaluated for tax purposes at 60% of value; then $5,000 is subtracted from the total, and tax is paid only on the balance.

Many Floridians pay no tax at all on their homes. There is also no state income tax and no inheritance tax—all factors which add up to an increasingly healthy growth rate for the "land of sunshine."

(To Be Continued)

PRIDE OF OWNERSHIP starts early...lasts a lifetime! You understand it. So do your customers. It represents the **satisfaction** that comes from owning a prized possession...one that represents the best efforts of its maker. **PEERLESS** furnaces and air conditioning equipment have earned that kind of customer appreciation. And, it pays off for dealer, builder, contractor and home owner. Everyone appreciates and benefits from **quality.**



PEERLESS CORPORATION
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✻ NOW 4 locations to better serve the growing family of Peerless customers
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A New **FREEDOM**
for Your AIR CONDITIONING SYSTEM
From the Problems of
Scale, Corrosion and Rust
By Your Use of
AIR-CON EMULSION SAND-BANUM

Contains NO CHROMATES

Contains NO ACIDS

Guaranteed Harmless to Personnel and Equipment

AIR-CON EMULSION SAND-BANUM—Performance Proved—developed especially for Air Conditioning Systems and Open Circulating Systems where water is recirculated; for a New Efficiency and Economy.

In addition, a Proportioner is available for further simplicity. It insures automatic feeding of Air-Con Emulsion into the tower. For larger systems—this enables the contractor or user to eliminate weekly applications.

AMERICAN SAND-BANUM COMPANY, Inc.
Merrick, N. Y.
"Sand-Banum Products Since 1926"
WATER TREATING CHEMICALS • RUST PREVENTIVE COATINGS
DIESEL AND FUEL OIL TREATMENTS
Agencies in Principal Cities

Superior Supply Modernizes—Informs Customers

KANSAS CITY, Mo. — Modernization of its facilities to speed customer service was recently completed by Superior Supply Co., refrigeration, heating, and air conditioning parts and accessories wholesaler here.

Major improvement was the installation of electronic data processing equipment to handle invoicing, inventory control, accounts receivable and payable, and statements.

Other improvements included the expansion of the sales floor by nearly 500 sq ft and of the counter by 12 ft. Offices were moved to the second floor, where more available space permitted arrangement of equipment for faster paper work. Office and sales counter are connected by pneumatic transitube for faster processing of orders.

Superior also installed new electronic communications equipment with nine trunk telephone lines and an electric door opener at the entrance facing the parking lot.

Paul Shapiro, Superior president, said that the new improvements were announced to the trade one at a time through a series of six promotional letters mailed at 10-day intervals. All letters invited customers to come in and see the new equipment.

LAST TWO of six letters mailed out by Superior Supply Co. to inform customers of how modernization serves them better are shown here. Along with letter #6 was an IBM card showing how an invoice would appear.

Murphy & Miller Streamlines Organization

CHICAGO—Murphy & Miller, Inc., air conditioning, refrigeration, and heating sales and service contractor here, has recently completed some organizational changes aimed at streamlining the organization to provide best possible operation in all the phases of its business, reports Harvey O. Miller, president.

The company, which not too many years ago was a relatively small service contracting organization, now employs more than 200 people and is active in sales and service and contract service in commercial and industrial refrigeration, air conditioning, heating service, appliance service, maintenance service contracts, and in the manufacture and sale of environmental test equipment.

The recent organizational changes, says Miller, permit a concentration of responsibility into five key men who report directly to Executive Vice President R. B. English. These men are:

John P. Schurman, sales manager, responsible for sales of new equipment. John is the son of Chris Schurman, former general sales manager of the York Engineered Machinery Div.

Robert W. Farrell, service, maintenance, and installation manager, with responsibility for the consolidated activities of this phase of the business. Farrell has been with the company since 1952.

Kenneth T. Holbert, chief engineer, and director of all engineering activity.

Robert E. Meyer, operations manager, has the responsibility for all inside shops (refrigeration, sheet metal, and environmental test equipment) warehousing, stock rooms, purchasing, and inventory control. He has been with the company since 1942.

T. F. Valker, comptroller, with full responsibility for fiscal affairs. He has been with the company since 1949.

The company has headquarters at 600 W. Taylor St., and branches in Evanston, Maywood, and Harvey, Ill., and Gary, Ind.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

TRANSFERRING HEAT?

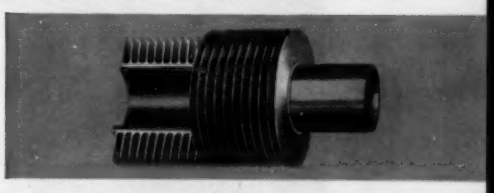
Only Wolverine Tube has a complete line of finned tube!

If your heat transfer application calls for additional service and extended surface tube—then Wolverine Tube can help you do a better job. From Wolverine's more than 30 years of experience has come the industry's most complete line of finned tube. You can, for example, specify integrally finned tube in low-fin form for shell and tube applications, in high-fin form for air-cooling or heating operations, with external-internal fins for maximum heat-transfer surface on both sides or in low-fin or high-fin duplex form for maximum corrosion resistance. And, for applications such as direct expansion water chillers, there's Wolverine aluminum insert water chiller tube—a copper tube with an aluminum insert. We'll be happy to tell you about any or all of them. Just wire, write or call—or ask your Wolverine Tube salesman —HE KNOWS!

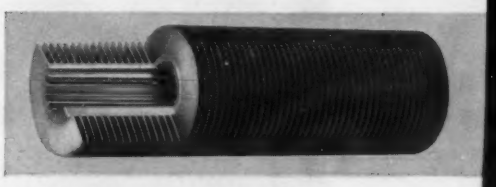
WOLVERINE TUBE
DIVISION OF
Calumet & Hecla, Inc.
DEPT. L., 17246 SOUTHFIELD RD., ALLEN PARK, MICH.
TUBEMANSHIP in Copper—Copper Alloys—Aluminum—Special Metals

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA.
SALES OFFICES IN PRINCIPAL CITIES

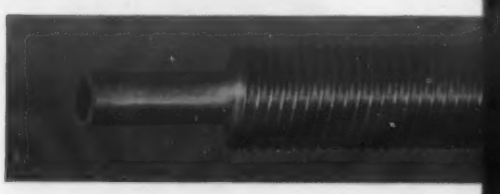
WOLVERINE TRUFIN® TYPE S/T


WOLVERINE TRUFIN® TYPE L/C (Bimetal)

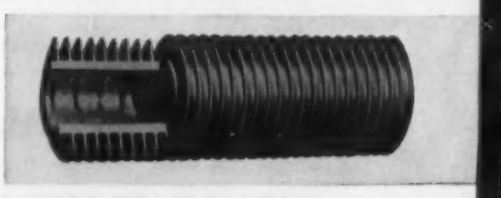
WOLVERINE TRUFIN® TYPE W/H


WOLVERINE TRUFIN® TYPE I/L

WOLVERINE TRUFIN® DUPLEX S/T


WOLVERINE TRUFIN® TYPE H/R

WOLVERINE ALUMINUM INSERT WATER CHILLER TUBE


WOLVERINE TRUFIN® TYPE H/A

What They're Saying, Doing

On the Industry's Firing Line Today

THIS COLUMN SPOTLIGHTS current outstanding activities and thought-provoking attitudes of those who are engineering, selling, installing, and servicing the industry's products. In some instances, for good reason, the source must remain anonymous.

What Type of Collective Activity By Mfrs. Would Help the Most?

By Phil B. Redeker

DALLAS-FT. WORTH—"Educate the public. Educate the dealer-contractor."

This was the close-to-unanimous response of the leaders of the Air Conditioning & Refrigeration Contractors Association of Dallas, and the Tarrant County Air Conditioning Association, Inc. (Ft. Worth area), to the question:

"What can the industry, acting in a joint and collective manner, do that will best promote the growth of the air conditioning industry and the interests of those selling the industry's products."

There was some comment to the effect that "educate the builder" was another essential, but others added wryly that "*try* to educate the builder" might be more appropriate terminology.

In exploring the subject further at an informal luncheon session, the Dallas-Ft. Worth area contractors further defined the phrase "educating the public" not only as a matter of explaining to the public what "true" air conditioning means, but also a matter of informing them as to what distinguishes a "good" or "quality" air conditioning installation.

Public Needs To Know Marks of 'Good' System

"I would say that in our part of the country, this matter of educating the public as to what constitutes a 'good' air conditioning system might be more important than educating the public on the benefits of air conditioning generally," said one dealer-contractor.

"In the Southwest, as perhaps contrasted to the northern part of the country, the public has generally accepted air conditioning—particularly the comfort cooling part of it—as something that is very desirable. But the public still doesn't know how to qualify a good air conditioning job, and consequently there's a lot of price buying and this results in bad installations that can only result in air conditioning getting a bad name, and this in turn can mean some slowdown in sales."

At the same time, many of the Texas dealers admitted that one of their major problems was in getting a fair share for air conditioning of the dollar being spent by both residential and commercial purchasers. In fact, ACRCA of Dallas had recently devoted a meeting to this very subject.

An answer to this problem of getting a better share of the consumer dollar is the program of educating the public better to the *over-all* benefits of air conditioning, it was pointed out. But how might this best be done?

"More use should be made of case histories of people or businesses who can offer testimony on the way in which air conditioning has helped them to live better, or has improved their business operations," was the opinion voiced by some of the dealer-contractors. "It seems like more use might be made of the Austin Village study and other surveys of users of air conditioning."

"One of the problems with promoting air conditioning to people who don't have it," complained one member of the Dallas-Ft. Worth group, "is that they can't have any actual experience with it, like they can test driving a new automobile that they might consider buying."

Education Needed on Owning, Operating Costs

Another area in which "education" is needed is in the matter of owning and operating costs of an air conditioning installation, particularly operating costs, it was stated.

One dealer-contractor voiced the thought that considerable promotion effort should be directed towards "new and less saturated markets, such as industrial air conditioning" and praised the advertising which Minneapolis-Honeywell has directed towards such markets.

In line with the expressed opinion about the need for "educating dealers" a number of the Texas outlets went on record as believing that manufacturers should "qualify" their dealers before permitting them to handle their products. In other words, certain standards of organization, operation, and responsibility in the dealer-contractor organization would have to be met before the right to handle the product was granted.

More Dealers?

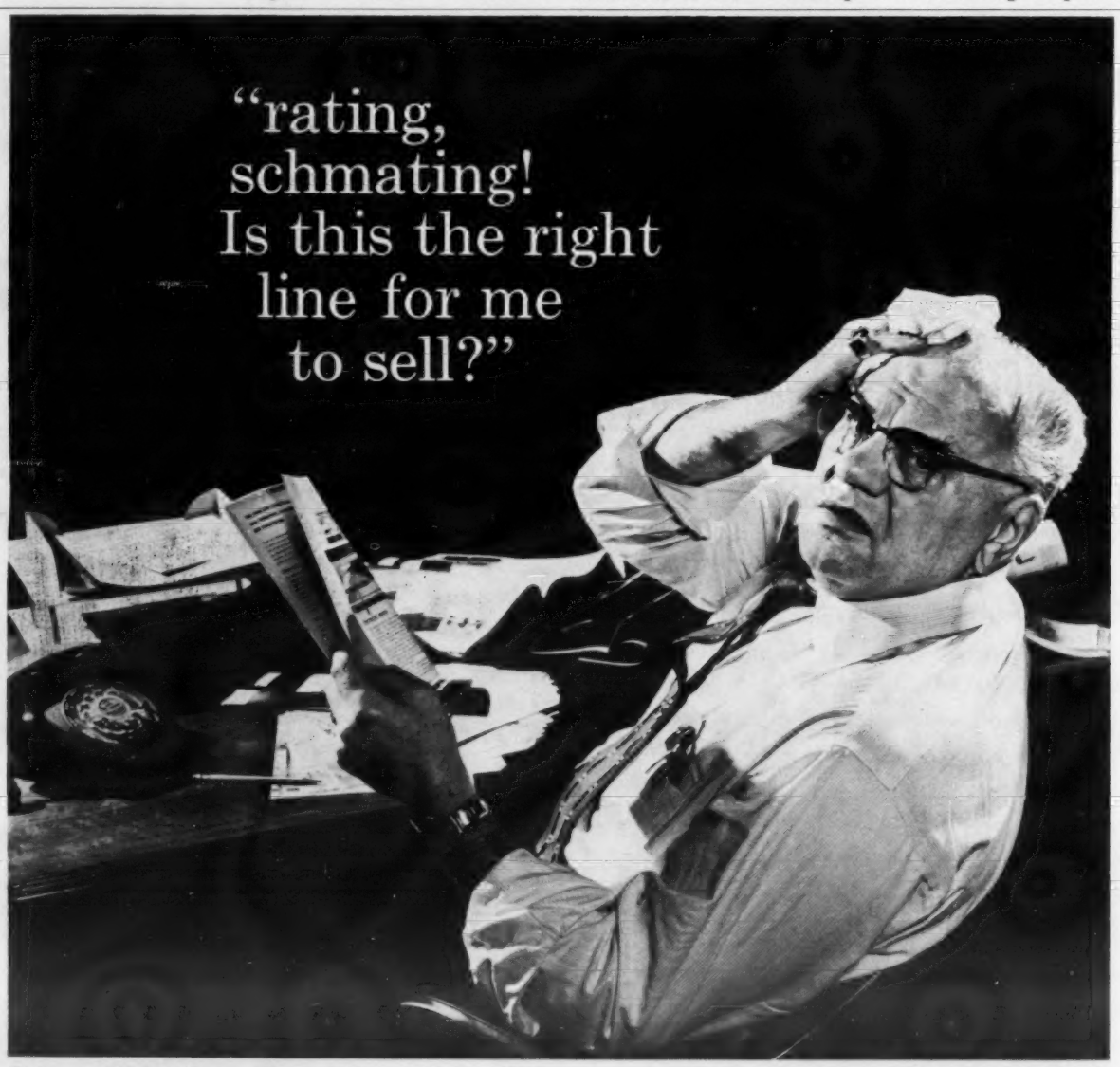
Criticism was expressed of the efforts of most manufacturers to increase the size of their dealer organization. "It's the marginal and 'fly-by-night' dealer who downgrades the whole business and gives the public the wrong idea of what constitutes good air conditioning," was the complaint voiced by the dealers.

A representative of a prominent air conditioning manufacturer voiced something of a dissent to this.

It's true, he said, that more emphasis should be placed on upgrading dealer - contractors, and many manufacturers were doing this. However, he said that with respect to the matter of seeking more outlets, these facts must be borne in mind:

Manufacturers have developed products and geared production facilities to supply a market that has fallen far short of expectations. The growth of sales of central residential installations has been at a snail's pace in the past few years, he pointed out, less than one out of every 10 new single dwellings is being air conditioned, and last year three times as many units were sold to air condition automobiles as were sold to completely air condition homes. In

(Continued on next page)



It is . . . if it's Gibson. Every Gibson Air Conditioner carries a written Performance Bond. This Bond specifies what size area the unit is designed for, what it will do. A Gibson performs exactly as specified or may be returned. It's that simple . . . it's that *salable!*

GIBSON AIR CONDITIONERS

PRICED — competitively
STYLED — beautifully
SOLD — profitably

THE ONLY AIR CONDITIONERS SOLD WITH A WRITTEN PERFORMANCE BOND

Gibson

Gibson Refrigerator Sales Corporation, Greenville, Michigan, Subsidiary of HUPP Corporation.

REFRIGERATORS • FREEZERS • ELECTRIC RANGES • AIR CONDITIONERS • DEHUMIDIFIERS

Planning for 12th All-Industry Exposition

LOS ANGELES—Plans were laid for an "Air Conditioning and Refrigeration Week" in Los Angeles to be held at the time of the 12th National Exposition of the Air Conditioning, Heating and Refrigeration Industry, Feb. 12-15, 1962, when representatives of industry trade associations and societies met with ARI committee members here recently.

With the show as a nucleus, several of the participating industries will hold their national conventions in Los Angeles at the same time, and the Western Air Conditioning Industries Association will stage a program of technical sessions on subjects designed to be of interest to all factors in the industry.

Organizations which will hold meetings in Los Angeles next February include the Air Conditioning & Refrigeration Wholesalers, Refrigeration & Air Conditioning Contractors Association, the Refrigeration Service Engineers Society, in addition to the Western Air Conditioning & Refrigeration Industries Association, which will act as host for the entire event.

Staging of the 12th ARI Exposition at the Great Western Exhibit Center in Los Angeles will mark the first time that an industry sponsored show of such scope has ever been held west of Chicago, and H. T. "Hy" Jarvis, president of Recold Corp. and general show committee chairman, is making confident predictions that it will be the best-attended of all the ARI affairs.

12TH NATIONAL ARI SHOW committee members look over floor plans for the all-industry exposition to be held in Los Angeles next February. Standing (l. to r.) George E. Mills, show director; George A. Schnier, and Sydney Anderson, committee members. (Seated) H. T. Jarvis, general chairman.

George E. Mills, ARI Show Director, reports that applications for show space are running ahead of previous ARI shows on a comparable time basis, with the probability of a sellout of the Western Livestock Exchange Exhibition Hall well before the opening of the Show.

Detailed progress reports on exhibits, technical session, hotel facilities, entertainment plans, and show advertising and publicity were made at the Los Angeles meeting.

Attending the meeting, in addition to Jarvis and Mills, were committee members George A. Schnier (technical society coordinator), Sydney Anderson, Jr. (hotels), and Arthur J. Hess, vice president, Western Air Conditioning Industries Association (technical sessions); Ernest Younis, regional chairman, and Thom Muir, executive vice president, ARW, who also represented RACCA and RSES in the sessions.

Frick Atlanta Branch In New Location

ATLANTA—The Atlanta branch office of Frick Co. has moved from the Mortgage Guarantee building to 3166 Maple Dr., N.E., Atlanta 5, Ga. New telephone numbers are 233-3286 and 7.

Warren L. Bain has been appointed branch manager and C. P. (Roy) Goree has been appointed consultant to the regional manager.

They're Saying--

(Continued from preceding page)

the commercial and industrial field, the record has not been a great deal more impressive.

Could manufacturers then be blamed, asked this manufacturer's representative, for feeling that some of this failure to achieve seemingly justifiable sales goals was the result of inadequate sales effort at the retail level?

The one other element in the air conditioning sales picture where "education" is important is the builder. On this point, most of the Texas contractor-dealers in effect threw up their hands and indicated they didn't have much in the way of constructive suggestions.

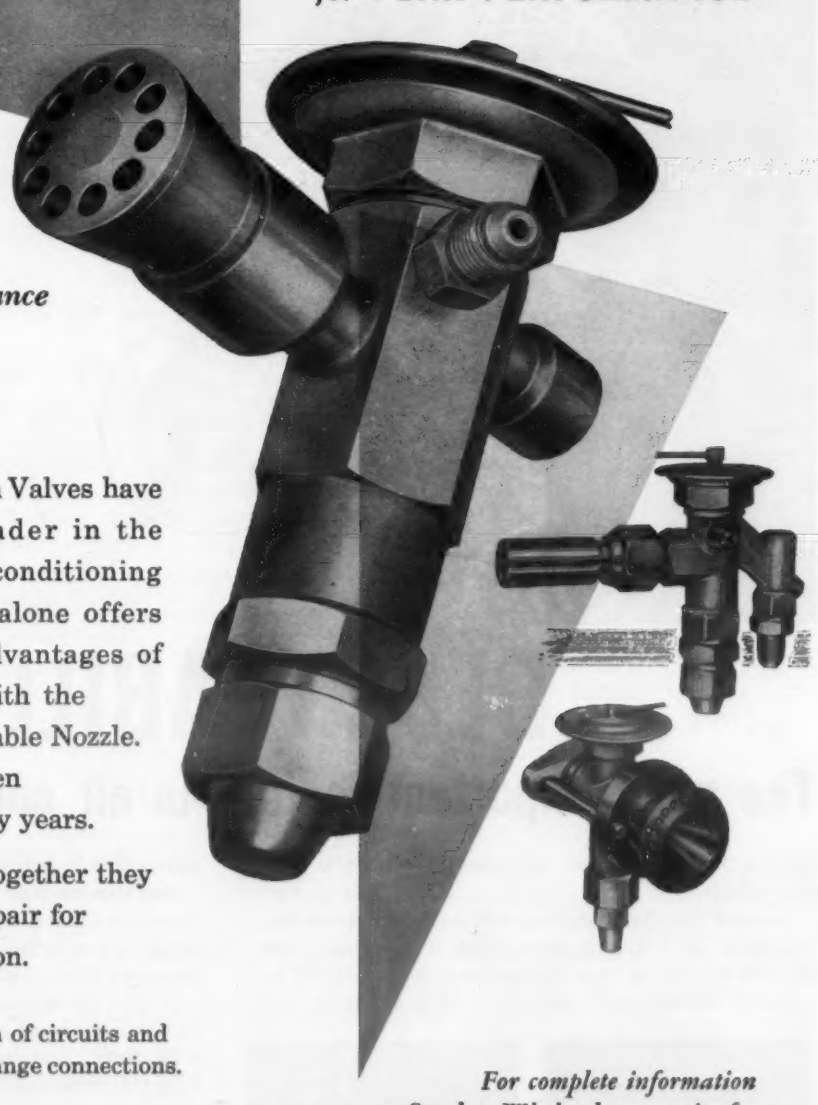
The builder can be important, it was pointed out, if he can be convinced that year-round air conditioning is a useful tool in selling homes for him. However, it seemed to be the feeling that before the builder will be interested in installing a quality air conditioning system, pressure will have to be exerted by the home-buying public to achieve such a goal.

In Dallas the association has made some moves on its own to upgrade the quality of installations. For the past several years it has had in action a "watchdog" committee program, wherein a three-man committee inspects at least 10 jobs per month and also makes inspections of jobs on which complaints have been filed, and looks into reports by city building inspectors of jobs that are "questionable."

The association is giving some thought to means of strengthening this program, and is also seeking a city licensing code for air conditioning installations. A previous effort along this line failed when builders brought pressure against the proposal, but the contractors will continue to push for it.

SPORLAN THERMOSTATIC EXPANSION VALVES and REFRIGERANT DISTRIBUTORS

are the PERFECT PAIR *for* PEAK PERFORMANCE



. . . they're designed to fit each other for smoother performance

Sporlan Thermostatic Expansion Valves have proved to be the leader in the refrigeration and air conditioning field . . . and Sporlan alone offers you the tremendous advantages of the distributor with the Versatile Interchangeable Nozzle. It too has been the leader for many years.

No wonder then, that together they make the perfect pair for any installation.

Available in any combination of circuits and capacities, in flare, solder or flange connections.

For complete information see your Sporlan Wholesaler or write for Bulletins 10-10 and 20-10 today!

SPORLAN VALVE COMPANY
7525 SUSSEX AVENUE ST. LOUIS 17, MISSOURI
EXPORT DEPT. 85 BROAD ST., NEW YORK 4, N. Y.

NWAHACA Study Finds

Zone Control Significant Comfort Factor

CLEVELAND — Improved temperature control of ducted air heating and cooling can be achieved in structures with widely varying exterior and interior load conditions through the use of carefully designed system zoning, reports the National Warm Air Heating & Air Conditioning Association.

This is apparent from heating-cooling investigation tests conducted in the association's Research Residence No. 4, at Urbana, Ill., during 1960. These findings were reported by the association's research staff at the annual convention meeting.

Wind, solar radiation, the number of persons in a room, and location of certain rooms near the furnace were found to create significant differences in temperature between various parts of the tri-level research residence.

Dampers placed in the trunk ducts and controlled by individual thermostats then were tried, with a single furnace used. A significant improvement in uniformity of temperatures throughout the home was noted under certain conditions.

Next step was the use of two furnaces with thermostatically operated dampers in the trunk ducts. Even greater uniformity of temperature was obtained, with a substantial reduction of furnace noises.

The same experiments were repeated with air conditioning during warm weather, and results were equally impressive.

Herbert T. Gilkey, director of technical services for the association, emphasized that zone control is not a cure-all. It will not overcome the deficiencies of a poorly designed system. Nor will it help when dampers overly restrict air circulation to a hot or crowded room.

"Yet, where there is a specific need, zone control is a quality feature which will make the difference between your selling a good system and your selling one of the common, ordinary, cut-down systems," Gilkey said.

Consensus of those at the annual association meeting at which these results were reported was that zone control, properly applied, is due for steady development as an important contribution to indoor comfort. Complete results of the research will be published at a future date.

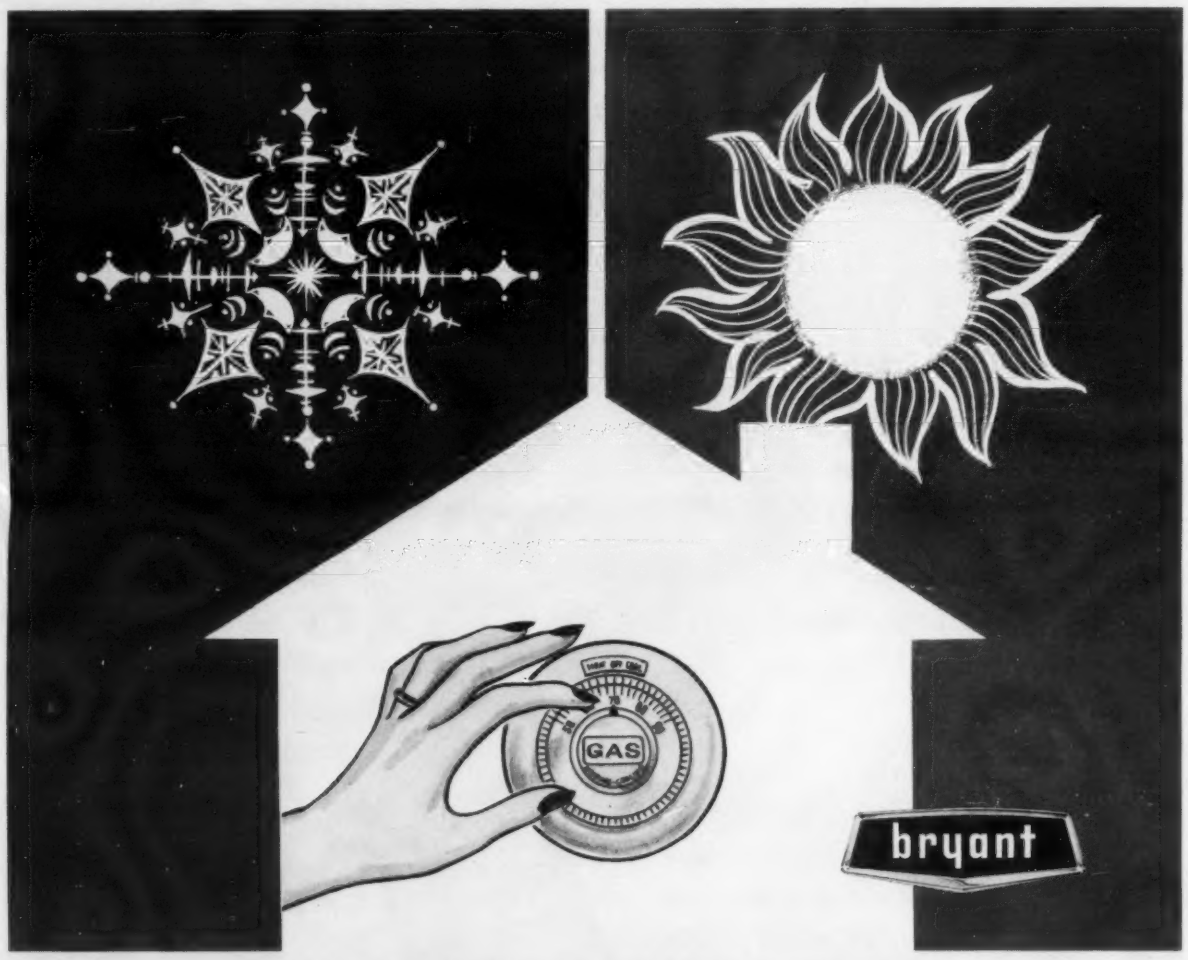
Meanwhile, two preliminary reports on this investigation—one on the heating tests, the other on the cooling tests—have been published by NWAHACA.

They are titled: "Investigation of Area Control in Air Conditioning Research Residence No. 4 during the 1959-60 Heating Season," and "Investigation of Area Control in Air Conditioning Research Residence No. 4 during the 1960 Cooling Season."

Copies of these preliminary reports are available at 10 cents each by writing to: National Warm Air Heating & Air Conditioning Association, 640 Engineers Bldg., Cleveland 14, Ohio.

Wins Janitrol Trophy

FRED HAMER, district manager for the Indianapolis office of Janitrol Heating & Air Conditioning, happily holds the company's 1960 "Sales Manager's Trophy" recently awarded at Janitrol's Goodwill Get-Together in Miami Beach, Fla. Sales representatives John W. Read, left, of Indianapolis, and Robert W. Hoover, South Bend, shared the honor with Hamer. The Indianapolis territory won the trophy by turning in the best sales performance compared to quota. In competition among 30 Janitrol sales areas, Indianapolis led in the four equipment classifications that comprise the contest.



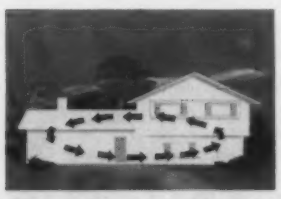
DEPENDABILITY

The most important feature in air conditioning today!

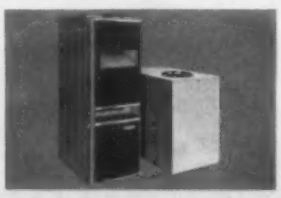
And a Bryant Gas air conditioning system is *truly* dependable.

Because it's Gas, weather will not disrupt service, especially on hot, hot days when it's needed most. Because it's Gas, neither you nor your customers will be bothered with excessive costs, excessive maintenance. For example, a Bryant add-on Gas cooling unit installs outdoors, uses no high amperage wiring, no valuable floor space, no water tower. And, because it's Bryant, you are backed by a company with over 50 years experience in home comfort . . . now a leader in air conditioning.

Bryant Gas air conditioning can be depended upon to furnish *whole* house comfort—all year round. And *nothing* cools more comfortably, more quietly, than Gas. Ask your Gas company for details. AMERICAN GAS ASSOCIATION



Bryant Gas air conditioning cools with an even flow of air, filtering out pollen and dust. Responds instantly to temperature changes—operates *quietly*.



A flip of one switch gives *coolness* in summer, *warmth* in winter—with compact Bryant Gas furnace (*fits in closet-size space!*) plus Bryant add-on Gas cooling unit.

LIVE MODERN FOR LESS WITH... **GAS**

Sequoia Set To Market Own Units Again

SAN CARLOS, Calif.—Implementing organization developments now under way, Robert H. Norris, president of Sequoia Mfg. Co. here, manufacturer of gas central heating and air conditioning units, has announced three personnel changes:

G. A. Barnes

Glenn A. Barnes, to executive vice president and general manager from sales manager; M. W. Stransky, to vice president, research-development and engineering, from plant manager; Garland F. Kneip, to secretary-treasurer, from assistant treasurer.

Barnes said Sequoia will continue contract manufacturing, but will also aggressively return to marketing its units under the long-established "Sequoia" brand. Besides its line of horizontal forced air furnaces and "Fre-Flo" gravity furnaces, by mid-year Sequoia will market a new and complete line of upflow and counterflow units.

Western New York ICB Elects Officers

BUFFALO — New officers of the Indoor Comfort Bureau of Western New York (Buffalo) were named at the annual election held here recently.

They are: President, Bert Weigel, Rundell & Weigel Co.; vice president, Charles Turner, Jr., Charles R. Turner Co.; secretary, Alvah Ehrman, Ehrman's Plumbing & Heating Co.; and treasurer, Ed Webb, Canlake Petroleum Corp.

NAED Plans Session on Electric Heat

DETROIT—A special presentation on electric heating is scheduled for the 53rd annual convention of the National Association of Electrical Distributors to be held here starting on Saturday, April 29, and concluding at Wednesday noon, May 3.

The theme for this general NAED meeting is: "Wholesale Distribution—The Key To Efficient Marketing." The electric heating presentation will be Wednesday morning, May 3.

Convention sessions and the Manufacturers' Conference Booth activities will be held in Detroit's new Cobo Hall. Convention headquarters will be located jointly in the Sheraton-Cadillac and the Statler Hilton hotels.

Convention registration starts on April 29, from 1 to 5 p.m. in the Sheraton-Cadillac. Convention registration continues on Sunday, Monday, and Tuesday —April 30, May 1, and May 2— this time at Cobo Hall.

There is no registration fee for NAED members or for those manufacturers holding conference booths. Each conference booth holder is entitled to five free registrations for each single booth. Registrations for additional personnel will be $10 per person—over and above the free registrations to which a booth-holder is entitled. There will be a registration fee of $50 per person for manufacturers who do not have a booth as well as for non-members of NAED.

The Conference Booth Center will be open from 2 to 5 p.m. on Sunday, Monday, and Tuesday. Registrations by manufacturers for conference booths, totaling 231 to date, indicate a near capacity turnout for this convention feature, it was stated.

The general convention sessions, open to both members and guests, will be held at Cobo Hall on Monday, Tuesday, and Wednesday mornings, from 9:30 a.m. to noon.

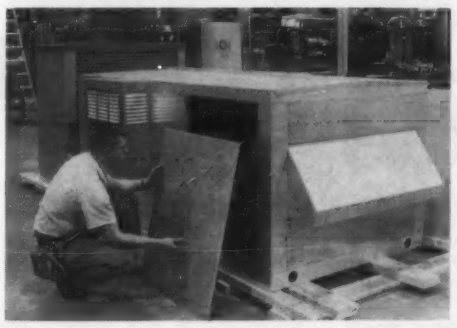
Room reservations for the convention are handled by the NAED Housing Bureau, c/o Detroit Convention and Tourist Bureau, 626 Book Bldg., Detroit 26, Mich.

Jennings Promoted at Bohn's Danville Div.

DANVILLE, Ill.—The promotion of Lawrence E. Jennings, Jr., to manager-refrigeration, Commercial Dept., has been announced by Wesley H. Markson, manager of the Commercial Dept. for the Danville Div. of Bohn Aluminum & Brass Corp.

Jennings, Jr.

Jennings succeeds D. J. Jessup who has resigned to go into business as a manufacturers' agent handling the Bohn refrigeration line and other accounts. Jennings came to Bohn in 1960.



NEW WESTINGHOUSE 7½-hp heating and cooling rooftop unit is said to be suited for both commercial and industrial applications.

Westinghouse Offers 7½-Hp Rooftop Heating and Cooling Unit In 2 Sections

STAUNTON, Va. — A new 7½-hp heating and cooling rooftop unit (model CRU-801) is available now from the Westinghouse air conditioning division.

The combination unit is suited for both commercial and industrial installations. The total cooling capacity of the unit is 75,900 Btuh; the total Btuh output of the gas furnaces is 160,000 Btuh, the company said.

"To facilitate handling, shipping, and adaptability to various types of installations, the unit is divided into two separate sections: one for heating and the other for cooling," it was pointed out.

"The heating section consists of two fans on a common shaft, a 1-hp fan motor and variable pitch drive, filters, and two 100,000 Btuh duct-type furnaces; an air-cooled condensing unit, evaporator coil, and control box comprise the cooling section.

"Each section is pre-wired, mounted on a 4-in. channel iron frame, and enclosed in aluminum panels. The cooling section is pre-charged with refrigerant and tested at the factory"

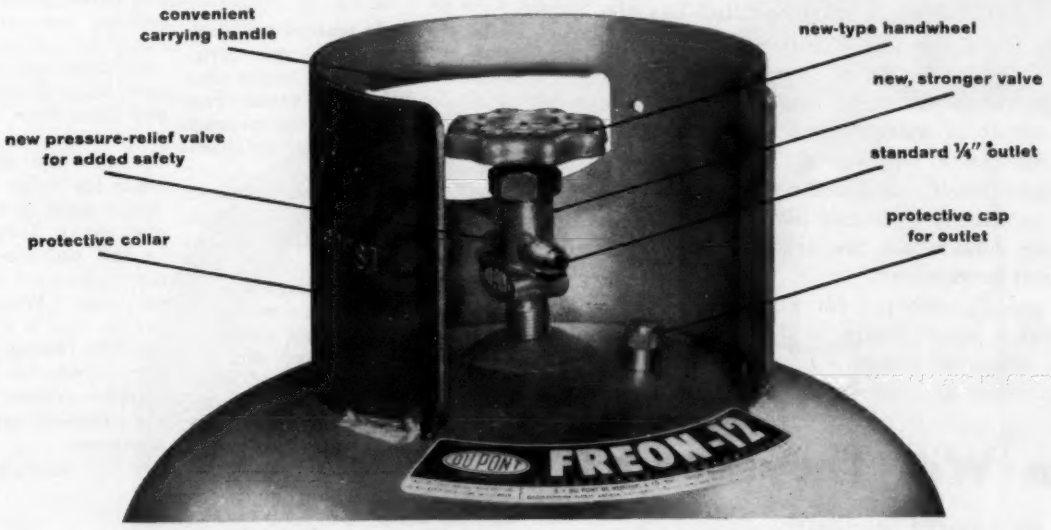
The sectionalized roof-top unit can easily be lifted to any roof, since the single heaviest piece weighs only 1,200 lbs, according to Westinghouse.

"The unit is designed for easy connection installation, since supply and return air enters through a single ceiling diffuser," it was stated. "Alternate external supply and return duct connections may be made if required. The unit includes a complete aluminum casing over the air handling section and includes special channel joints designed to prevent leakage.

"Factory installed disconnect switches are provided with branch circuit fusing. By removing one of the aluminum panels, free access is provided to the fan, fan motor and drive, filters, and burners. No sheet metal screws are used in these access panels."

Edwards Counter Cards

POMPTON PLAINS, N. J.—Edwards Engineering Corp. here has published a series of colorful counter cards promoting the advantages of the "Zone-A-Matic" zone control baseboard heating system, and for use in distributors' showrooms.



See your wholesaler now for a new "Zephyr"

Redesigned valve makes "Zephyr" cylinders for FREON® stronger, easier than ever to use

While service engineers praised the light weight and convenient shape of the first "Zephyr" cylinders, they suggested several additional improvements. We've made them—to make your job of handling Freon* premium quality refrigerants even easier. And your refrigeration and air conditioning wholesaler now has these newest "Zephyr" cylinders for you—with a free bonus to boot!

COMPLETELY NEW VALVE. "Zephyr" cylinder valves have been redesigned to provide new convenience, strength and safety. Wrenches or adapters are no longer needed. You can now operate the valve with a strong but easy-to-turn handwheel—and attach charging hoses directly to its standard ¼-inch outlet. The entire valve assembly is stronger and contains a built-in pressure-relief device which, with the fuse plug in the cylinder, makes the "Zephyr" the safest service container you can buy.

Add these new features to all the other conveniences of "Zephyr" containers for "Freon-12" and "Freon-22", and you can see why it will pay you to get your new, factory-filled "Zephyr" cylinders now.

Carry them. "Zephyr" cylinders are lightweight, with a built-in carrying handle that also protects the valve . . . now make a 50-lb. size practical.

Stack them. "Zephyr" cylinders are wider, shorter . . . can be stacked for space-saving storage, stand up on trucks.

Invert them. "Zephyr" carrying handle also acts as a stand, needs no blocks, permits easy liquid charging.

FREE BONUS OFFER! Look for the bonus envelope attached to your new "Zephyr" cylinder. It entitles you to a free can of new Du Pont aerosol "Slipspray"—a *dry*, all-purpose lubricant with hundreds of uses at home or work. "Slipspray" leaves no oily film . . . stops sticking, binding, squeaking on all surfaces. Offer expires June 30, 1961.

FREON® *premium quality* REFRIGERANTS

DU PONT

Better Things for Better Living . . . *through Chemistry*

*"Freon" and combinations of F- with numbers are Du Pont's registered trademarks for its fluorocarbon refrigerants.

Editorial

Are You Company or People?

Several of us were scanning our files of business cards the other day when we were struck by the fact that on about 50% of the cards the man's name dominates; on the other half, the company name is big and bold, while the individual is identified by tiny 6-point type down in some corner.

When we looked again at specific cards, one thing became apparent:

In most cases where the company name dominates, we recalled that in our conversations we refer to the organization by company name; in the overwhelming number of instances where the individual's name dominates the business card, our conversations are in terms of people, not corporate entities.

Following the thought suggested by this finding, we came up with three pertinent examples:

- There are several suppliers now for a component which was exclusively supplied a few years ago. In the industry, the former sole supplier is still referred to as "the - - - company." Its major competitor has the trade talking about "Wally" and "Doc Jones"—about people.
- One of the major OEM suppliers in the industry longs for the day when its "Mike" and "Stet" were shop-side words. As a result of mergers and moves up the ladder, the company admits it has lost its field personality.
- The NEWS, itself, has a well recognized *people image*. Readers refer familiarly to names like Redeker, Taubeneck, Mericle. To our subscribers, we are not "that paper published in Detroit somewhere."

Short of going overboard for a cult of personality, it would seem that a people image is at least as important to business as a corporate image.

Have you looked at your business cards lately?

When Will They Learn?

Recently we received this letter.

"We have a problem on which we would appreciate your comments and/or help if possible.

"We are in the process of heating and air conditioning 637 units of a Wherry Housing Project, on which a portion of the specifications reads as follows:

" 'The system shall be evacuated to an absolute pressure of not more than 100 microns and held at this pressure level for a period of not less than four hours, to assure a leaktight refrigerant system.'

"1. Do you have any information or any source of information on the correct procedure to follow in accomplishing the above?

"2. Is this a normal procedure to follow for residential air conditioning."

This man is sincere; he needs help and we gave it to him.

But this is a military installation; our tax money is being spent.

HOW DOES IT HAPPEN THAT AN INSTALLATION OF THIS IMPORTANCE HAS BEEN GRANTED TO AN OBVIOUSLY UNQUALIFIED CONTRACTOR? At least, unqualified *air conditioning* contractor.

Doesn't the Base know—hasn't anyone told them—that it isn't just "leaktight refrigerant systems" they need; that without proper installation, they will inevitably experience high service frequency and component failure?

How long, O Lord, how long.

Reading books in one's youth is like looking at the moon through a crevice; reading books in middle age is like looking at the moon in one's courtyard; and reading books in old age is looking at the moon on an open terrace. This is because the depth of benefits of reading varies in proportion to the depth of one's own experiences.—*Education Digest.*

You Asked About It

Edited by Hugh T. Mahar

Formerly limited to things technical, this column has extended its scope to reflect the wide range of reader service performed by the NEWS. From our files, from our editorial staff, from experts in the field, we draw the information necessary to answer reader questions of general interest whether they be on engineering or merchandising, on service or accounting.

Q. Can you supply me with a source of service data for specific makes and models of refrigerators?

FPH—Massachusetts

A. We know of no such source. However, we suggest you write directly to the manufacturers who do maintain such information on their own models. There are, of course, manuals dealing with all makes generally, but you are undoubtedly aware of these.

Q. Why do motors and compressors in freezers and refrigerators last so much longer than in air conditioners? Seven years seems to be about the average life of compressors for air conditioning.

JRC—South Dakota

A. Engineers and manufacturers point out that in the completely factory-built and sealed unit (the refrigerator or freezer) the human error is reduced to the minimum and problems of weather and dirt are minimized. In the case of an air conditioner it may be installed under varying weather conditions by workmen with varying degrees of skill. Under these conditions it becomes impossible to eliminate completely those conditions and impurities which lead to motor compressor failure. Manufacturers have studied the life of motor-compressors but are not willing to divulge the findings. The longest estimate we have heard is 8½ years.

Q. Where can I purchase parts for the old Servel refrigerator?

JD—New York

A. These parts are probably available from the Whirlpool Corp., St. Joseph, Mich.

COMMENT —

A couple years ago, in the award-winning 28-week "Report on Education," the NEWS questioned the efficacy and validity of multiple-choice tests.

In a recent issue of *Harper's*, Dr. Banesh Hoffmann, professor of mathematics at Queens college, New York, attacked what he calls "the tyranny of multiple-choice tests."

Pointing out that such tests are increasingly being used to screen applicants for colleges, industry, and commerce, for promotion, Dr. Hoffman warns, "They penalize the candidate who perceives subtle points unnoticed by less able people, including the test makers. . . . They neglect skill in disciplined expression."

Welcome aboard, Dr. Hoffmann.

OFF THE CHEST

HEIL-QUAKER CORRECTS WARRANTY DATA

Heil-Quaker Corp.
Nashville 4, Tenn.

Editor:

A copy of the NEWS *for* March 6 has come to hand and I note that in your article entitled "The 5-Year Warranty: A Progress Report" that we are listed on page 13 under companies offering a 1-year warranty.

I believe that an error has been committed in as much as we do offer a 1 and 4-year warranty and, perhaps, should have better been included in that listing.

We appreciate the complete coverage of the pros and cons of the 5-year warranty program and firmly believe that you are serving the industry in good stead by airing many of the criticisms and complaints that have been offered. I noticed that two items seem to be fairly common amongst the contenders. One is "cost of the program" while the other is "lack of ability to make a profit"; it seems that many have forgotten that to the ultimate user must go our thanks for any success that we enjoy. When all the facts are in and a studious effort is made to resolve the issue within the boundaries of our free enterprise system, I am sure that the decision will be good for everyone.

RICHARD M. HERBERT
Chief Engineer

WANTS INFORMATION ON TRIMESTER PLAN

Modern Heating & Cooling
Cherokee, Iowa

Editor:

I like your feature "Inside Dope" very much, in fact its about the first thing I read in each new issue of the NEWS.

Would you be so kind as to furnish me with a copy or copies of information on your Trimester Idea?

R. H. EHRICH

WHY NOT COLOR CODE UNITS FOR FIELD MEN?

Jacksonville, N. C.

Editor:

Having been a reader of the NEWS for the past 15 years and since its start "The Tech Center" I would like to put my two cents worth in for what it's worth (that is if its printable).

As a layman working away from the distributor and dealer and having to pick my own way along, the big trouble I have found is telling what Refrigerant is used in the system. I have found numbers of machines that the nameplate has been removed and the motorcompressor will not have it stamped as to the refrigerant used so what should I do?

My suggestion would be the color code like that used on the drums.

GEORGE BUCHANAN

DOUBTS IF ENGINEER COULD STRIKE

8836 Abbott South
Minneapolis 20, Minn.

Editor:

An engineer, in the course of his work, devotes his energy, intelligence, and inventive nature to help place his company in a leading, or at least favorable, competitive position.

It is inconceivable that this same engineer can be mentally equipped to do all in his power, during a labor dispute, to destroy the economic position of his company. To say that such an attitude is unnecessary is to ignore the threat-of-strike as an integral part of collective bargaining. To say that an actual strike is unnecessary, that the threat is sufficient, is ridiculous in the light of past labor disputes. To accept unionization, the engineer must accept the strike mechanism.

There are several alternatives to unionization. I cannot accept the union philosophy; I suspect that those in your survey who don't believe in free enterprise cannot accept alternatives.

T. E. LARSEN

AIR CONDITIONING HEATING & REFRIGERATION NEWS
F. M. COCKRELL, Founder

'The Conscience of the Industry'

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From the Files of the News

25 years ago . . .

At hearings on New York City's proposed code for refrigerating and air conditioning systems, debate was heavy on the inclusion of the words "for human comfort" in definition Z5 (Air Conditioning) because inclusion would mean that the code did not cover air conditioning for industrial purposes. . . . "This Thing Called Automatic Heating and Air Conditioning," a booklet designed to give an understandable, comprehensive story of these subjects from a consumer's viewpoint, was issued by Minneapolis-Honeywell Regulator Co. . . . Editor George Taubeneck, traveling around the world, spent the week in Singapore. Next port of call: Calcutta.

Ten Chicago Andes candy stores reported heavy summer business after installing air conditioning equipment which consisted of 2-hp York condensing units and C-200 ceiling-type air conditioners. . . . Carrier - Brunswick International reports installation of air conditioning in the harem of the Nawab of Rampur, India, who, it is claimed, bought the equipment to restore peace, and eliminate domestic discord (on a large-scale basis!) in his palace. "The Nawab is now receiving love from contented women," commented a Carrier-Brunswick vice president.

NEMA issued its first reports on air conditioner sales by 15 companies reporting to the commercial refrigeration section. Statistics covered self-contained, floor-type, ceiling type (cooling only and combined heating and cooling), and residential type. World sales of self-contained units in January, 1936, totaled 34 units, with the February total, 31 units.

10 years ago . . .

A unique air filter, first used by the Atomic Energy Commission to keep radioactive particles out of the air and developed by Arthur D. Little, Inc. engineers, will be manufactured by the Cambridge Corp., formed for that purpose by Little and Carrier Corp. Cloud Wampler, president of Carrier, and Earl P. Stevenson, president of Little, reported in a joint statement that single filter units can be built to handle 1,000 cfm at pressures within the capacities of central station air conditioning systems. . . . First public hearings on a proposed revision of its refrigeration ordinance which would require licensing of journeymen as well as contractors will be held in Detroit.

A saving of one third in cooling requirements of a Boston bowling alley was effected by hanging a 4-ft Plexiglas curtain from the ceiling between the public area and the alley area. A 10-ton packaged usAIRco air conditioner handles what would have been a 15-ton job.

In Albany, N. Y. owners of water-using air conditioning equipment were warned that their units would be shut down and they could be fined up to $50 if they haven't installed water conservation regulators on their units by May 1. According to the mayor, indiscriminate use of water in air conditioning units has at times used up a million gallons of water a day. . . . General Electric Co. has announced that it plans to expand its major appliance manufacturing facilities at an "Appliance Park" somewhere in the midwest.

50 years ago . . .

From the RECOLD MUSEUM

These 40-to-60 years ago items are from the Recold Museum Library, maintained by Hy Jarvis, Recold Corp. president.

Thomas E. Murray, general manager of New York Edison Co., tells us that electricity will solve our ice problems in summer. Ice is required most when lights are least demanded. So, let power stations make ice by electricity. Cheap ice, cheap power, steady load, more revenue. All to be had just by making a little machine which the flat-dweller can operate like a camera.

But ice men have heard these rosy promises before. The first prophet came along before there even was a commercial ice making plant. The last one is still laboring over his nuts and bolts. Manufacturers of ice making machines know even better than the ice man the limitations of that small machine which shall be absolutely automatic, simple, and highly efficient.

White-Rodgers Acquires Signet Controls

ST. LOUIS — White-Rodgers Co., automatic controls manufacturer, announced acquisition of the assets of the Signet Controls Div. of Iron Fireman Mfg. Co., effective April 14.

The purchase was announced jointly by J. A. Rodgers, White-Rodgers' president, and Louis J. Cox, president of Iron Fireman. The Heating Div. of Iron Fireman has been the major customer for Signet controls.

Rodgers stated that the assets purchased from Signet will be moved and integrated into White - Rodgers' newly - constructed plant in St. Louis.

White-Rodgers will continue to make the T600 thermostats and heating-cooling sub-bases formerly available from Signet.

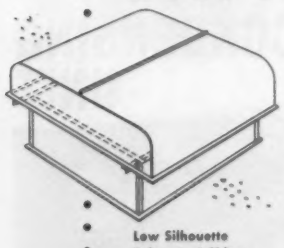
"Since Signet had previously decided to discontinue the manufacturer of its primary oil burner controls and fan and limit controls, White-Rodgers will stock a limited inventory of these controls to avoid inconvenience to present Signet manufacturer customers until corresponding White - Rodgers controls are approved for the specific application concerned.

"Signet service and repair stations will continue operations and Iron Fireman will continue to service both in-warranty and out-of-warranty controls, as required. Iron Fireman may at its option, however, substitute equivalent White-Rodgers controls in the Signet exchange program."

GET RICH

WINDMAKER

ROOF FAN



- Low Silhouette
- Exhausts 4 Sides
- Quietest Operation
- BLADE SIZES: 20", 24", 30", 36", 42", 48", 54"

PHIL RICH FAN MFG. CO., Inc.

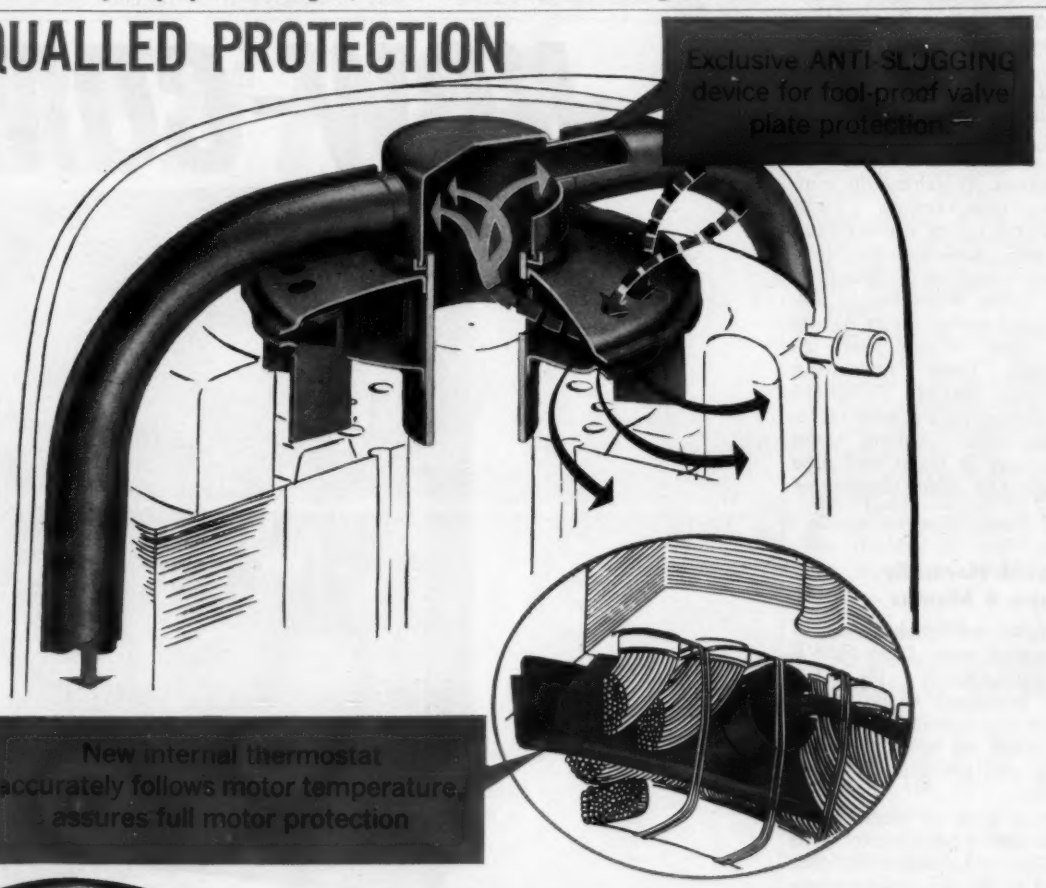
Phone FAirfax 3-9181

2900 CAROLINE HOUSTON 4, TEXAS

For Your Reprint Copy

"Short, Short Course in Air Conditioning Fundamentals." By D. C. Schaffer. Mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich. Only 25¢ each.

UNEQUALLED PROTECTION


Exclusive ANTI-SLUGGING device for fool-proof valve plate protection
New internal thermostat accurately follows motor temperature, assures full motor protection

CL SERIES COMPRESSORS
CL25—rated at 30,500 BTU
CL30—rated at 38,500 BTU
CL35—rated at 43,500 BTU
CL40—rated at 50,500 BTU

WIDER SELECTION . . .

WITH TECUMSEH'S NEW CL SERIES COMPRESSOR

This 2-pole, R-22 line of CL compressors provides Tecumseh's air conditioning and heat pump customers with unmatched advantages. Dual internal protection is furnished on the 3, 3½ and 4 H.P. models (the 2½ H.P. model includes the centrifuge only) as standard equipment. With normal charge and runs, the fool-proof Anti-Slug Device prevents oil or liquid refrigerant from reaching the valve plates. The internal thermostat is built *into the motor winding* to give instantaneous and accurate sensing of motor temperature at the most critical point and therefore removes compressor from the line at a safe temperature level. Both devices are *always* operative when the compressor is running and are unaffected by outside variables. In combination, they offer compressor protection unequalled in the field. This broad line, offered to Tecumseh customers for the first time, provides a closer match to your requirements. A full year of successful field tests have proven the new CL Series your best compressor buy. Investigate it today.

forty million compressors in the field

TECUMSEH PRODUCTS COMPANY

MARION, OHIO
TECUMSEH, MICHIGAN

FOREIGN OPERATING DIVISION: Tecumseh, Michigan

CANADA: Tecumseh Products of Canada, Limited, Ashland and Wilton Avenues, London, Ontario

In 90 Days

Plant Production Near Normal as Contractor Installs 800 Tons of Air Conditioning

Installing 800 tons of air conditioning in an existing plant with a minimum of disturbance to normal production of the plant calls for careful planning and close coordination between plant officials, installing contractor, and suppliers. Normally the job would take about six months.

But Dynamic Air Engineering's contract called for the system to be in operation in four months. The company did it in three. Here is Maurice Fairbrother's story of the time schedule that did the job. This article should be of interest to contractors faced with the problem of scheduling large air conditioning installations.

By Maurice Fairbrother, President,
Dynamic Air Engineering Co., Grand Rapids, Mich.

GRAND RAPIDS, Mich.—On April 20, 1960, Lear, Inc., of Grand Rapids, awarded Dynamic Air Engineering Co. the contract to install 800 tons of air conditioning equipment for controlling the temperature, humidity, and positive pressure differential of their entire plant No. 6 housing its instruments division.

The equipment consisted of two 400-ton Worthington centrifugal compressors, eight large Worthington air-handling units, two American-Standard cast-iron sectional gas-fired boilers, three Worthington 40-hp chilled-water circulating pumps, three Worthington 15-hp cooling tower circulating pumps, one 800-ton Pritchard cooling tower, plus a host of related materials. Among them were 40 tons of black iron pipe and about the same amount of galvanized sheet metal ductwork.

Job Would Normally Require 6 Months

One outstanding challenge of the contract was: "TO HAVE IN OPERATION IN 120 DAYS." Inasmuch as an installation like this would normally take at least six month, careful planning and consideration was important.

A great deal of engineering had already gone into this project prior to April 20. Our aim was to induce enough clean filtered fresh air into the plant to maintain a predetermined pressure differential between inside and outside atmospheres. At the same time, we had to control the temperature and the humidity of the entire plant production area. Production in the plant consists of machining, assembling, and sub-assembling materials and parts for space instruments, particularly gyroscopes, for their final assembly in the two large super-clean white rooms encompassed within the factory area.

All Heavy Equipment Had To Go on Roof

Lear Plant No. 6 had been in operation one year. It is of slab construction, with every inch of floor space occupied. This meant that all of our heavy equipment was to go on the roof, to be housed in a new penthouse. The plant was in full production, and was to stay in production throughout the life of the contract.

Existing large gas-fired fresh air makeup units were to be removed and 30,000 cfm Worthington fan coil units installed in their approximate areas.

Tones of sheet metal ductwork attached to these large fan units had to be placed above the light line. This meant weaving and fiitting this ductwork into the steel superstructure of the plant. This same thing was true in installing the large 10-in. chilled water supply and return piping, and the other utilities that were attached to the large fan coil units.

In the early phase of the designing, a great deal of planning and coordinating was done to fit and install all of this equipment and materials into the building without interrupting production, and in record time.

Installation Time Table

May 2, 12 days after the contract was awarded, engineering was finished, all basic equipment and materials were ordered. Schedules were arranged and in agreement, and first shipment of materials reached the plant—80,000 lbs of black iron pipe.

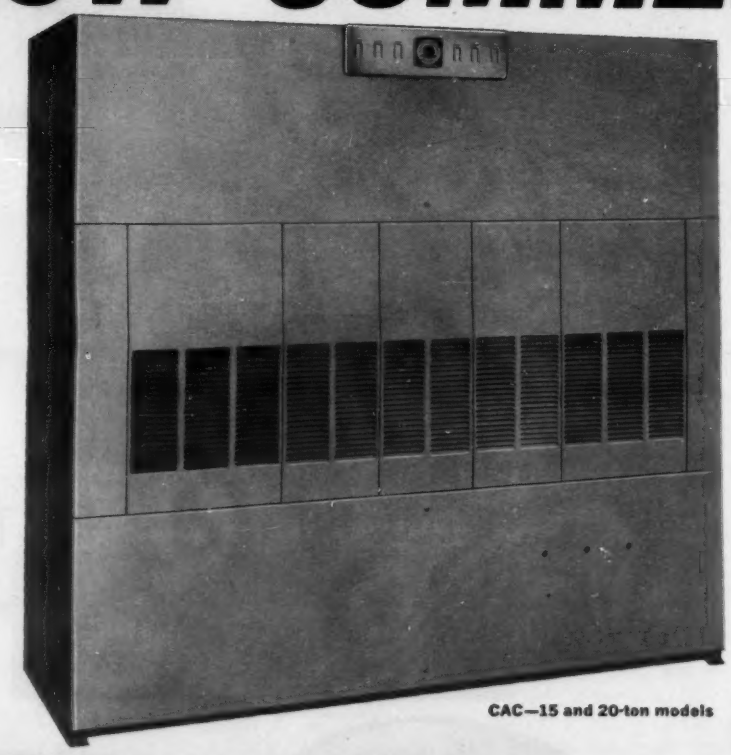
The chilled water and steam piping within the plant was started at once; steelwork for the penthouse and the sheet metal trunklines were also started.

May 16, two weeks later, the large fresh-air gas-fired makeup units were being removed from the ceiling and out of the areas. We were ready to install the new Worthington chilled water fan coil units. The cooling tower had arrived on the job, and installation started.

Progress in this two weeks' period was: sheet metal, about 15% completed, the main plant piping, 30% completed, penthouse steel erection, 50% done.

HOISTING one of the two Worthington 400-ton hermetic centrifugal refrigerating machines to the roof of Lear, Inc. plant No. 6 in Grand Rapids. This event occurred only 67 days after the contract to install had been signed.

NOW-COMMERCIAL



CAC—15 and 20-ton models

NEW!

CAC Units (Water or Air Cooled)—These units are designed for use in restaurants, supermarkets, offices, factories, churches, larger homes, etc. They are available in both packaged and split-system types. The cabinets of the units are compact (see size table, right) and the units are easy to install. They are available in 3*, 5, 7½, 10, 15 and 20-ton cooling capacities. The 3, 5 and 7½-ton units are equipped with a single compressor, the 10-ton units with a single compressor or double compressors, and the 15 and 20-ton units each have two compressors. Optional plenums are available that have four-way adjustable grills. All

SPLIT SYSTEM AIR CONDITIONER

RC-B
Horizontal with Universal Blower
22,000 to 82,000 BTUH

RC-H
Horizontal
21,600 to 56,000 BTUH

RC-V
Vertical
22,000 to 55,000 BTUH

EVAPORATORS

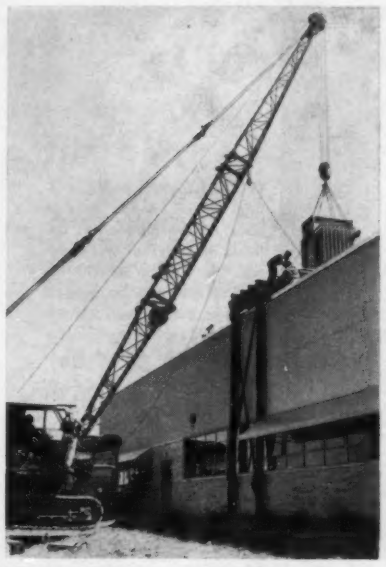
The RC-B evaporator, with its universal blower, can be mounted with its own ductwork or used where a furnace has insufficient blower capacity. The three other "add-on" evaporators shown here offer complete versatility of installation to a dealer.

RC-C
Counterflow
21,000 to 46,000 BTUH

CONDENSING UNIT

AC-B
2, 3, 4, 5 & 7-ton cooling capacity

THE COMPLETE LINE IS



TRANSFORMER is also hoisted to the roof for installation in the penthouse containing the air conditioning equipment. All this was done without disturbing production in the plant.

May 30, six weeks from the time the order was signed, the cooling tower installation was 55% completed, main plant piping was 65% completed, the penthouse steel erection was 85% completed.

June 13, another two weeks later the first shipment of air-handling units had arrived and were 25% installed. The chilled water circulating pumps and the condenser water circulating pumps had been received and were 25% installed.

The chilled water mains in the plant were 90% completed and tested.

Putting insulation on the chilled water mains had been started, and was about 20% completed. 65% of the gas-fired fresh air units had been removed.

The sheet metal ductwork was approximately 50% completed. The cooling tower was completely installed. The penthouse steel erection was completed.

June 27, two weeks after that, or 67 days from the date of the contract, all equipment had been received. The two 400-ton centrifugal compressors were shipped and received one week ahead of schedule. Installation of these compressors was started on this date.

The last shipment of air-handling units had been received and were approximately 30% installed. Tower and condenser water piping was 50% completed. Chilled water pumps and condenser water pumps were 60% completed. Boilers 60% completed.

Insulation in the plant mains was 50% completed. The electrical contractor was approximately 50% completed. The control people, Power Regulators, were on scheduled and about 65% completed.

All of this equipment other than the air-handling units was installed in the newly-constructed penthouse on the roof of the plant, which was 90 ft in from the nearest wall.

THREE CHILLED WATER pumps circulate water through centrifugal machines and out into the plant. Rear header takes chilled water to air handler units in plant. Front header receives chilled water from centrifugals. Two pumps are in use. One is a standby.

Coordination of this equipment was handled in such a way that rigging for the equipment for all trades was handled the first three days of the week of June 27. On this weekend, a caravan of nine large semitrucks containing about 125,000 lbs of equipment arrived at the plant.

By **July 11,** the insulators had been worked into the penthouse, and were about 55% completed. The centrifugal compressors were 85% installed. Tower and condenser piping completed. Sheet metal work 90% completed. Boilers completed. Electricians and the control people were approximately 90% completed.

On **July 11** we re-evaluated our schedule, and weighed the circumstances surrounding this project, realizing that we had all of our equipment and materials on the job.

The weather was hot and very humid, and production requirements were increasingly heavy. We decided to move ahead of our schedule as rapidly as possible.

Equipment Turned on 90 Days Following Award of Contract

As a result of this, 10 days later at noon on Saturday, **July 23,** we pushed the switch and started the first centrifugal compressor.

The entire plant area was brought down to design conditions (80° Db, 55% r.h. inside at 95° Db, 77° wb outside) in 3½ hours, and the plant remained under those conditions throughout the rest of the season.

This was 90 days from the day the contract was awarded. Balancing, cleaning up, testing, and adjusting took place over the next two weeks and the entire project was completed 30 days ahead of our committed schedule.

Cooperation Seen as Key to Speedy Job

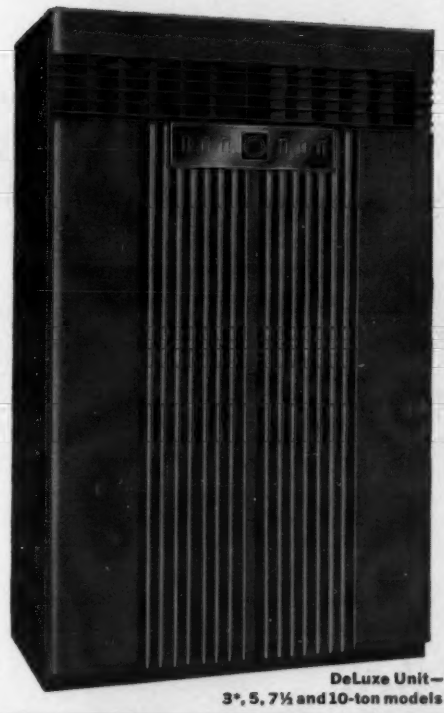
Naturally on a project of this size and with the schedule we were to keep there were a great many things to be worked out; but the wonderful relationship that existed between the customer and the contractor, and the teamwork between our manufacturers and suppliers made it possible to perform in the way we did.

Lear very carefully cleared factory areas to provide just enough room for our scaffolding equipment and the workman to work.

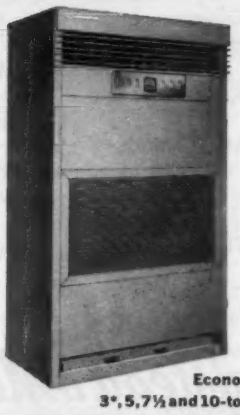
(Continued on next page)

OR RESIDENTIAL-

NEW!



DeLuxe Unit—
3*, 5, 7½ and 10-ton models



Economy Unit—
3*, 5, 7½ and 10-ton models

air-cooled models can be used on low ambient applications. The economy version of the 3, 5, 7½ and 10-ton units costs the dealer approximately 5% less, so he's ready to meet competition where price is the deciding factor. The mechanism is the same as the de luxe model, but the unit has a simpler grill.

*Available only in water-cooled type.

	3	5	7½	10	15	20
H	85¾	85¾	87¾	83¾	80	80
W	42	42	50	66	84	108
D	24	24	30	30	31¼	31¼

AC-BR
Outside Unit
3 & 5-ton

SPLIT SYSTEM

RC-BR
Inside Unit
with Universal Blower

HEAT PUMPS

PACKAGED UNIT
ACPR 2, 3, 4 & 5-ton

SELF-CONTAINED PACKAGED UNIT

The ACP is a complete, self-contained air conditioner with high-capacity blower. It is designed for installation in attic, breezeway, utility room, basement, crawl space, through-the-wall or outdoors. 2, 3, 4 and 5-ton cooling capacity.

ACP

Get the data sheets and price lists on these units today—your American-Standard Air Conditioning Division Distributor has them. This distributor is a specialist—selected because of his experience, dependability and outstanding service facilities. He always maintains an adequate inventory of products for your needs, and he will deliver promptly. Call him today.

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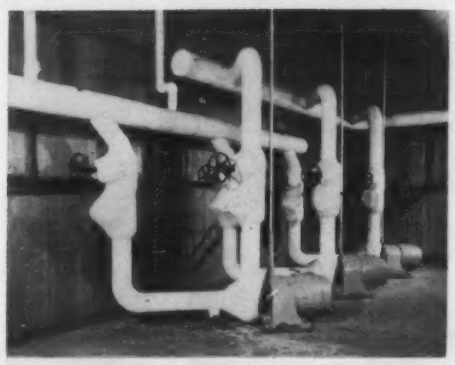
AMERICAN-Standard
AIR CONDITIONING DIVISION

AMERICAN-STANDARD!



THREE PUMPS, one a standby, circulate chilled water. Front header receives water from centrifugals, rear header takes it to air handling units in plant.

(This cutline should appear on cut in columns 4 & 5 of page 21.)

IN PENTHOUSE are (front to rear): power transformer, control panels, centrifugal compressors.

Air Conditioning In 90 Days--

(Continued from preceding page)

Handling of the 10-in. water mains to lift them up into the steelwork of this building 30 ft above the floor, some of the sections of pipe weighing a ton, was done so very carefully and without incident.

The large air-handling units and air distribution ductworks, the large Barber-Colman diffusers up to 48 in. in diameter, were all fitted into and around the steelwork in this same very careful manner.

All of this made the entire project a wonderful experience, and results are very satisfactory. The constant temperature, constant humidity and a constant pressure differential all held to within one degree and one per cent throughout the entire production area.

Air Conditioning's Benefits Have Already Become Evident

Now that the system has been in operation for some time, several bonuses are coming into view. There is a noticeable increase in the quality of finished products and these products are costing less to make.

There has been a rapid decrease in absenteeism and less sickness among employes.

And probably most important, the controlled plant atmosphere makes the white rooms easier to maintain and keeps parts and sub-assemblies going into the white room cleaner.

TWO-CELL PRITCHARD cooling tower, seen through door of the penthouse, delivers 400 tons of water per cell. It weighs 38,000 lbs and is mounted on support grillage. It delivers at the rate of 3 gpm, cools water from 95 to 85°.

While Dynamic Air Engineering had responsibility for the installation of the air conditioning system, Haven-Busch Co. of Grand Rapids constructed the penthouse for the equipment and Clement Electric Co. furnished and installed the electrical power wiring under separate contracts with Lear, it is explained.

"Here's why I standardized on H&M cooling towers

...they're the only towers with a 20-Year Guarantee on the wetted deck surface!

"In my town, most air conditioning and refrigeration buyers prefer cooling towers for their installations. But local water conditions are pretty hard on the fill. Fungus and algae grow fast and furious—so fast that the accumulation actually blocks air flow and cuts tower capacity!

"After trying several makes, I standardized on H&M Cooling Towers. *The wood fill is specially treated with creosote applied under pressure,* and water plants and animals can't live on that! That's why the Halstead & Mitchell towers carry a 20-Year Guarantee on the wetted deck against failure due to fungus attack or rotting."

If you want towers that will last, and need a minimum of care, you should find out about H&M towers. Call your local parts wholesaler or write for Bulletin EC-500 (Propeller Fan Towers, 3 to 150 tons) or Bulletin ECKB-601 (Centrifugal Fan Towers, 5 to 100 tons). Halstead & Mitchell Co., Dept. H-42 Bessemer Building, Pittsburgh 22, Pa.

HM

Halstead & Mitchell

Cooling Towers • Air-Cooled Condensers • Air Handlers and Coils • Water-Cooled Condensers

Notes Growth of Humidifiers for Industrial Uses

PHILADELPHIA — Recent installations of humidifiers for industrial uses have been reported by Martin A. Jacobs, general manager of Humidaire Co., Inc. here, eastern Pennsylvania distributor for Walton Laboratories, Inc.

Jacobs was called upon by United Engineers & Constructors, Philadelphia, for consultation on humidification of a testing area at the new General Electric Space Missile & Vehicle Development Div. of the Space Technology Center at Valley Forge, Pa.

He said Walton industrial duct model WTM, having a maximum output of 12 gal. per hour (96 lbs of moisture), was chosen. Delivery was made recently to the successful bidder, the Limbach Co. of Pittsburgh.

Jacobs also reported that there has been "much activity these past few weeks in industrial humidifiers being used by Philco in conjunction with York air conditioning for government use throughout the world.

"Deliveries were made recently to Edward B. O'Reilly & Assoc. of Germantown, Pa., for shipment and installation in such places as Crete, Turkey, Pakistan, Okinawa, Japan, Saipan, and several American bases.

"It is interesting to note," he added, "the many new and old and varied industries that require humidification.

"One example is a recent installation made in one of the largest candy mint plants in the East. The results were so gratifying to the company's engineers that it was weeks before they let the news out of its results, for fear their competitors would take advantage of this 'find.'

"There are approximately 78 industries that must have humidity in varying degrees. As specialists in humidification, we feel that the air conditioning industry is overlooking an extremely profitable 'fill-in' for the slack between seasons."

Current Literature

Freeze-Drying Fish

WASHINGTON, D. C. — A Soviet report on the preservation and storage of fish by the freeze-drying method is included in a collection of 18 articles on food processing compiled and published in a bound volume by the USSR Food Industry Publishing House.

The 263-page book is available in English through the Office of Technical Services, Business & Defense Services Administration, U. S. Dept. of Commerce, Washington 25, D. C. Price is $2.75.

Fourteen of the articles discuss the processing of fish, and four are research reports on the use of whale products in the Russian food industry. All of the material was translated from the Proceedings of the USSR Scientific Research Institute of Maritime Fishing Economy and Oceanography.

Hydronic Heating

INDIANAPOLIS — A how-to-do-it book on residential hydronic heating has been issued by Bryant Mfg. Co.

Produced by the Bryant Training Center, the 72-page loose-leaf "Hydronics Design and Application" manual is a source book containing detailed piping plans for the six basic home styles, cost reduction suggestion, and tips to the trade.

It includes simplified tables for calculating heat loss, detailed information on starting and checking the system after installation, and a section devoted to trouble shooting.

The manual, priced at $2.50, is available to the trade through any Bryant distributor. Other inquiries should be sent directly to the Advertising Dept., Bryant Mfg. Co., 2020 Montcalm St., Indianapolis 7, Ind.

'Freze-Cel'

CHICAGO — Catalog Section FSC, recently revised, issued by the Dole Refrigerating Co., 5910 N. Pulaski Rd., Chicago 46, Ill., describes the Dole "Freze-Cel" model 2735 self-contained double contact plate food freezer, now available in 6, 7, or 8 stations with capacities up to 320 packages per loading.

Air Moving Equipment

LOS ANGELES — Long included in the Drayer-Hanson roster of air conditioning, air handling, and refrigeration equipment, but never catalogued for general distribution is its AM Series of air-moving equipment.

The designer - manufacturer has prepared a two-sides engineering data sheet descriptive of this nine-model line, utilized in the main for commercial/industrial applications. The publication is highlighted with a cutaway of an actual model.

Fan capacities, engineering, and other related data are contained in separate companion publication: Request both from Drayer-Hanson Div., Hi-Press Air Conditioning of America, Inc., 3301 Medford St., Los Angeles 63, Calif., as EMG 5715 and CSHV 312.01.

Making Sound Behave

ROCKFORD, Ill.—A booklet (F-10180) describing a new slide film entitled "Making Sound Behave" is available from Barber-Colman Co., 1300 Rock St. here.

The film was prepared by the company's Uni-Flo Air Distribution Div. Facts for engineers and architects about air distribution sound levels are discussed in the film. Decibel variations and air distribution sounds of different frequencies have been recorded.

'Uni-Crest' Uses

KEARNY, N. J. — United Cork Cos., Dept. 64P, Kearny, N. J., announced the availability of a new 8-page booklet describing "Uni-Crest" expandable and expanded polystyrene.

The applicability of regular and self-extinguishing Uni-Crest to the construction, refrigeration, air conditioning, flotation, and packaging fields is illustrated. Pre-expansion and molding of the material are also discussed.

Radiant Heating, Cooling

LIBERTYVILLE, Ill. — Burgess-Manning Co.'s Architectural Products Div. here has released an engineering manual on radiant heating, cooling, and acoustic ceiling.

Bound in a 10½ in. by 11½ in. loose-leaf binder, the manual contains over 200 pages of data, drawings, specifications, etc. Additional material will be released at regular intervals "to further enhance the value of the manual as a working tool." Since all copies are "registered," the manual will be kept current.

Copies of the manual are available at $25 each, prepaid, by writing the company.

Induction Motors

ST. LOUIS—A new 12-page bulletin on squirrel cage induction motors of basic dripproof designs has been issued by Century Electric Co., 18th & Pine Sts., St. Louis 3, Mo.

This bulletin, covering horsepower ranges from 1 to 150, outlines squirrel cage motor applications, performance characteristics of squirrel cage motors, mechanical design variations, construction details, insulation details, and ratings.

Pump Seals

NEW YORK CITY — The U. S. Seal Mfg. Corp. announced the availability of its new, revised pump seal catalog, #460.

"Over 250 precision engineered, quality manufactured pump seals are listed with illustrations, dimensional, and technical data," the company said. "All are supplied individually boxed, complete with installation instructions."

Write to: U. S. Seal Mfg. Corp., Dept. PR-2, 60 Lispenard St., New York 13, N. Y.

SEND FOR REPRINTS

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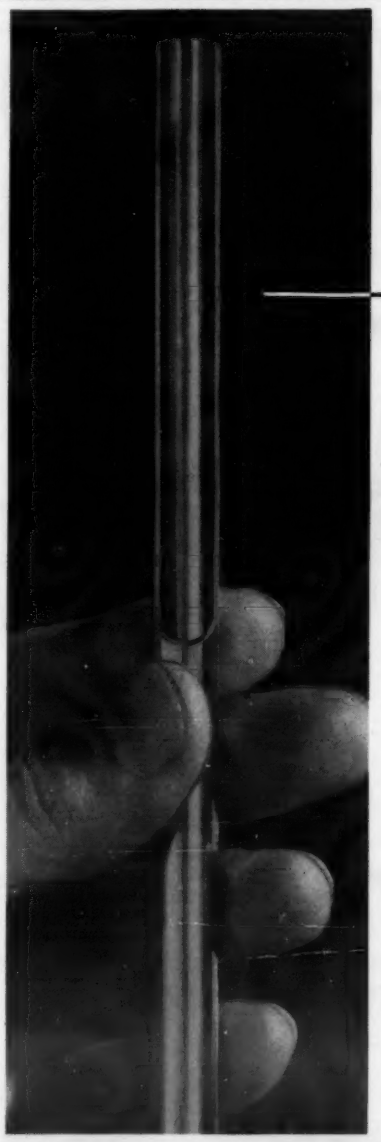
Only 50¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.



23,000 miles of Anaconda thin-wall copper tube passed by eddy current test–

with no customer rejects

To meet rigid requirements for thin-wall copper tube for air conditioners consistently, Anaconda developed new techniques and standards for nondestructive testing that are highly reliable in flaw detection.

Eddy current equipment is Anaconda's inspection tool. It can be operated at many levels of sensitivity. Merely passing tube through this electronic device means nothing. It is only when used at a practical level for each size tube—with meaningful standards—that this type of testing is significant.

Anaconda has developed these critical and realistic standards through some 10 years of research in electronic testing. Substitution of automatic electronic inspection for human observation and judgment means uniformly excellent products for Anaconda customers.

Anaconda standards are based on a practical measure of tube soundness in actual use and end product. The eddy current device detects such flaws as lap seams, embedded chips, cracks, tears, and fractures—and rejects unsound tube automatically.

The care and attention Anaconda has devoted to developing electronic testing standards for tube used in air conditioning is typical of quality conscious practices throughout — for all types of copper tube used in air conditioning and refrigeration. It is your assurance of consistent soundness and dimensional accuracy in whatever Anaconda product you buy.

Quality tube and creative technical services. Whether you need hard or soft thin-wall tube, hairpin bends, long coils, capillary or restrictor tube, or one-piece bulb and capillary units, Anaconda has the experience and facilities to produce the quality tube you need for economical manufacture. For creative technical assistance in tube or tubing components, the services of Anaconda Small Tube Division specialists are available to you for the asking. For further information or technical help, write: Anaconda American Brass Company, Box 1031, Waterbury, Connecticut. ens

This eddy current testing device, shown inspecting thin-wall tube, detects flaws such as lap seams, embedded chips, cracks, tears and fractures.

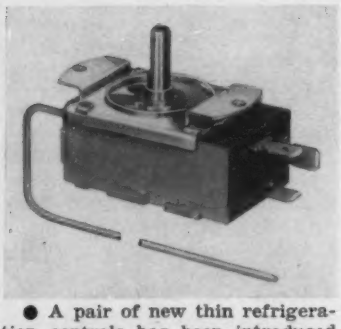
ANACONDA®

COPPER TUBE

for Refrigeration and Air Conditioning

Anaconda American Brass Company

Bow Thin Controls for Cycling, Cut-In



● A pair of new thin refrigeration controls has been introduced by Ranco Inc., Dept. AH&RN, 601 West Fifth Ave., Columbus 1, Ohio.

"The A40 refrigeration cycling control features extra wide differentials and side access terminals," the company said.

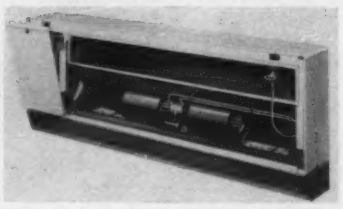
"In the operation of this control, varying temperatures on the power element capillary or bulb changes the internal pressure and height of the bellows. This in turn causes a movement within the control mechanism which rotates the toggle lever to operate the switch. The S.P.S.T. snap-action switch opens on a decrease in temperature.

"The standard element is vapor-pressure filled, and its bellows respond to the coldest temperature point on the capillary tube or bulb. Operating limits from -24° to 71° F can be provided. Available temperature differential range from 8° F minimum to 66° F maximum.

"The A42 constant cut-in control incorporates the same extra wide differentials and side access terminals. Frost-free operation is assured since the compressor cycles each time the evaporator temperature reaches the control warm constant cut-in temperature. The S.P.S.T. snap-action switch contacts are toggled open on decrease of temperature."

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Fan Coil Units Made In 11 Types, 6 Colors



● A new line of "Airditioner" fan coil units, providing central-system air conditioning with individual room controls, has been announced by Modine Mfg. Co., Dept. AH&RN, 1500 DeKoven Ave., Racine, Wis.

The series, styled by Designer Jean Otis Reinecke, is available in 11 different types and six different colors.

Exclusive pushbutton features save time and effort in service and maintenance, the manufacturer declared.

The units will heat, cool and dehumidify, ventilate, or circulate air in a room according to individual preferences. The same piping system, connected to a central source, supplies hot water to the coil for heating and chilled water for cooling. A fresh air intake, with aluminum or steel wall box, also is available on the new Modine equipment.

Air flow capacities of the units go as high as 1,500 cfm. There is a wide choice of models for mounting on the floor, on the wall, or concealed in the wall.

"One of the exclusive new features, offered as optional equipment, is an automatic pushbutton lubrication system," Modine declared.

"The push of a button on control panel will distribute metered amounts of lubricant to each oiling point. Even distribution is assured through the use of orifices.

"Filter-changing also is simplified. There is no need to remove panels to reach the filter because it is located on the front of the unit and pulls out easily like a drawer."

Condenser Ranges From 7½ to 100 Tons

● A heavy-duty, air-cooled "Aircon" condenser with horizontal or vertical air flow for air conditioning or refrigeration and available in 19 sizes from 7½ to 100 tons nominal capacity in a single unit is offered by McQuay, Inc., Dept. AH&RN, 1600 N.E. Broadway St., Minneapolis 13, Minn. It is designed to provide refrigerant condensing for all air conditioning and refrigeration applications for use with Refrigerants 12, 22, or 500. Multiple installations make possible an unlimited capacity range, it was stated.

Automatic head pressure control for year-round operation is available with the McQuay "Seasontrol" method or the "Dampertrol" method with opposed blade face dampers.

Electronic Trigger On Acetylene Torch

● A new air acetylene torch, the flame of which triggers on or off automatically without external lighting needed, is being marketed by Navan Products, Inc., Dept. AH&RN, 900 N. Sepulveda at Imperial, El Segundo, Calif.

"When the safetied trigger is pressed, a battery operated electronic device lights the torch instantly," it was explained. "Releasing the trigger shuts the gas off and the flame goes out. This feature reduces gas consumption by as much as 80% on stop and go jobs."

Trade named "Prest-O-Matic," the self-lighting torch is suitable for silver brazing, soldering, and for tempering of light gauge metals, according to Navan Products, invention marketing subsidiary of North American Aviation, Inc. A kit consisting of a Prest-O-Matic torch and three tips—fine, medium, and large—is priced at $24.95.

Make Power Plant Engines to 150 Hp

● A broad line of power plants, engineered expressly for air conditioning applications, is being offered by Continental Motors Corp., Dept. AH&RN, Muskegon, Mich.

The engines range in size from 18 to 150 hp (continuous duty ratings). Performance characteristics are said to include the ability to operate for long periods with only routine attention. They include both L-head and overhead valve types, for operation on all fuels including Diesel oil and natural gas.

In the case of the latter, since the fuel enters the combustion chamber as a dry gas, harmful carbon deposits are reduced to a minimum, the company said.

NEW AIR CONDITIONING CONCEPT

THUNDERBIRD WEATHERAMIC

It's here, the first and only practical, field tested solution for pre-cooling condensing coils during extreme heat periods. The hotter the temperature, the more efficient the cooler operates—actual cooler discharge temperatures will be from 25° to 30° less than ambient air. The G&S Thunderbird Weatheramic condensing unit combines the best of air conditioning and evaporative cooling to create an entirely new profitable market. Customers buy because they save three ways: 1. First cost; 2. Operating cost (up to 30% lower); 3. Trouble-free service.

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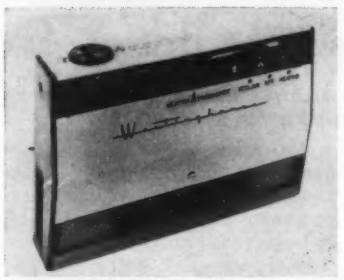
Westinghouse Adds Electric Heat Products



● Several new products have been added to the line of residential electric heating equipment available from the Westinghouse Air Conditioning Div., Dept. AH&RN, Staunton, Va.

They include: a new 3-ft-long baseboard section rated at 750 watts; a new combination thermostat-switch-outlet section; and a wood dummy baseboard section.

"The 3-ft-length section," Westinghouse said, "incorporates all the advantages previously available with the 2-ft baseboard sections: the unique modular plug-in concept that simplifies installation time, reduced over-all size, unique three-way air flow design that permits the surface of the units to remain cool while in operation, and modern functional design.

"The combination thermostat-switch-outlet section is 9½ in. long and contains a standard heating thermostat and a 220-volt outlet for use with room air conditioners. A summer-winter selector switch permits switching from heating to cooling. This outlet for cooling is rated at 12 amps; the heat control is rated at 20 amps.

"The functional modern design of the baseboard heating units can now be carried completely around any room with the introduction of the new wood dummy baseboard section. The section is painted to match the existing line of baseboard heaters or it can be painted to match any decor."

Float Air Eliminator Can Be Cleaned

● A new float air eliminator has been developed by the Sure-Flow Corp., Dept. AH&RN, 5249 Kings Highway, Brooklyn 34, N. Y., for use on hydronic heating systems and chilled water cooling systems.

This automatic air eliminator can be easily and completely cleaned when necessary, according to the company. The patented features on the unit are said to make it possible to flush sediment, scale, and scum that collects in the system out of the valve with the system's own pressure. This eliminates need to empty the system and replace the air eliminator, the company indicated.

Brick Size Aluminum Vent Line Expanded

● C/S Cast Aluminum Brick Size Vents are now available in an expanded line of 18 modular sizes, fixed and operating, according to Construction Specialties, Inc., Dept. AH&RN, 55 Winans Ave., Crawford, N. J.

The company said the vents answer a wide variety of needs for air supply and provide the architect with a rugged vent which will neatly fit into the exterior wall module in standard and jumbo brick, and cinder or concrete block construction.

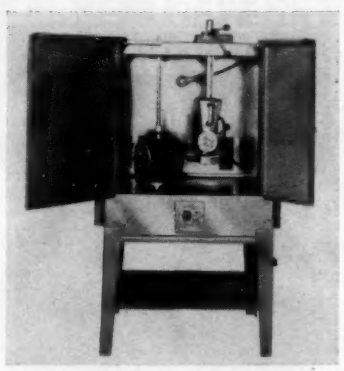
C/S Brick Size Vents are recommended as air intake or exhaust for unit air conditioners. They are also suited to ventilation of roof spaces, crawl spaces, boiler room, hung ceilings, bathrooms, or kitchens, the company said.

Two entirely new fuel oil vents, furnished with standard pipe threading for 2-in. and 3-in. vent pipe connection, have been designed and approved for use as ventilators for fuel oil and volatile storage tanks, the manufacturer added.

Want More Details?

ADDITIONAL details on products that are described on these pages may be obtained by writing the manufacturer at the address given in each What's New story.

Machine Opens All Kinds of Hermetics

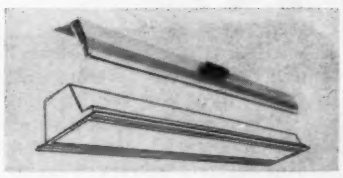


● A machine for opening automatically all kinds of sealed hermetic compressors has been announced by Airserco Mfg. Co., Dept. AH&RN, 435 Melwood St., in Pittsburgh, Pennsylvania.

The Airserco Hermetic Compressor Opener comes in two sizes. The Junior Model, Airserco No. 4062, will handle hermetic units up to 14 in. in diameter, the company said. The Standard Model, Airserco No. 4067, will open units up to 20 in. in diameter.

"In use, the hermetic unit to be opened is clamped on a turntable and a cutting wheel is positioned against the edge of the weld," it was explained. "The machine will automatically remove a predetermined amount of metal from the weld, permitting the unit to be opened, repaired, and resealed. The operator can proceed with other duties while the Airserco Hermetic Compressor Opener is removing the weld from the unit."

Air Diffuser Installs In Separate Troffer



● An air diffuser for troffers, which permits coordination of air distribution and illumination in a single ceiling unit is now available from Anemostat Corp. of America, Dept. AH&RN, 10 E. 39th St., New York 16, N. Y.

The integral parts of the combination unit are two separate products. The Type CLD Anemostat air diffuser is purchased from Anemostat, and the air handling troffer from whichever troffer manufacturer selected. These units are separately installed by the mechanical and the electrical contractor.

The diffusers have been designed for separate installation to avoid conflict of trades, it was pointed out.

The CLD air diffuser is of the aspirating type, and discharges the supply air at acceptable sound levels without smudging, the company said.

Fountain Dispenser Has Electronic Faucets

● Introduction of its new "Electr-O-Touch Drink-O-Matic" 3 in 1 combination beverage bar, ice maker, soda fountain, has been announced by Mile High Equipment Co., Dept. AH&RN, 610 Santa Fe Drive, Denver 4, Colo.

The Electr-O-Touch features four positive action electronic faucets. According to the manufacturer, "just the touch" of the most fragile paper cup activates the faucet.

"In addition to dispensing four automatically mixed drinks—carbonated and non-carbonated—plus soda and ice water, the Electr-O-Touch Drink-O-Matic makes and stores its own flaked ice—(average harvest 300 lbs) and features any combination of four syrup pumps and/or crushed fruit cover ladles for sundaes, shakes, "Sno-Cones," slush, and other fountain specialties," the company said.

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5 Gallon Bottle Type
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. . . economical . . . efficient . . . streamlined . . . space-saving . . . ⅛ H.P. Tecumseh hermetic unit . . . five year warranty on refrigeration cycle. . . .
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Model CB-2A
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PERFORMANCE PROVEN for
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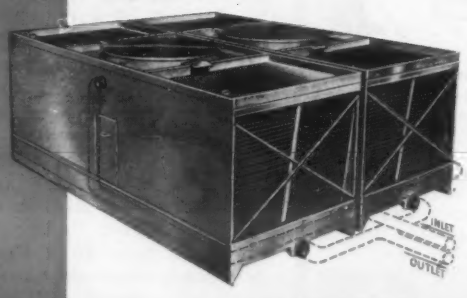
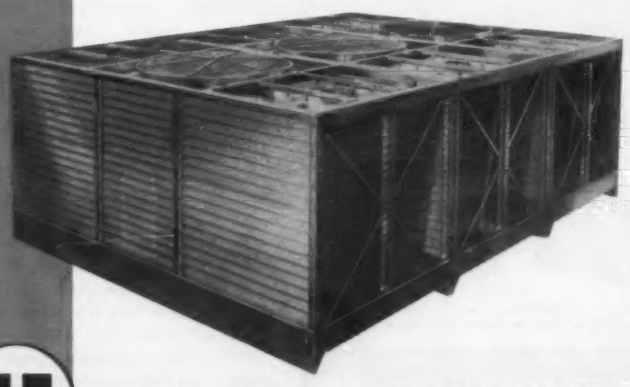
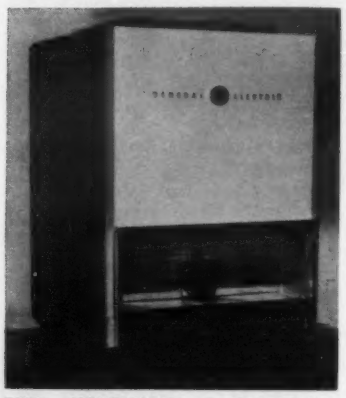
● INDUSTRIAL PROCESSES
FEATURING QUALITY AND LONG LIFE





Havens COOLING TOWERS
DIVISION OF HAVENS STRUCTURAL STEEL COMPANY
1713 CRYSTAL AVE., KANSAS CITY 26, MISSOURI

G-E Thermoelectric Water Cooler Shown To Trade, To Get Market Test



FIRST APPLICATION of thermoelectric principle to G-E water coolers is this executive type model. It cools electrically without compressor or refrigerant. Production plans will depend on market test results.

LAS VEGAS, Nev.—The first application of the thermoelectric principle for General Electric's water coolers was announced by the company's Commercial Equipment Dept.

Department officials said the new cooler was shown here March 27-29 during the annual meeting of the American Bottle Water Association, to obtain informed opinion on the new equipment.

G-E emphasized that the new cooler does not replace its standard line of water coolers, and stated that production plans for the new unit would depend upon market test results.

The cooler, about 15 in. square and 21 in. high, is expected to find application in executive-type offices and other facilities serving up to three people. It can be placed on a desk, a bookcase, or on any other piece of convenient office furniture.

The top of the cooler is shaped so that a bottle of water can be used for supply, or the tank itself may be filled with water.

Custom engineered

TEMPRITE

REMOTE WATER COOLERS

... offer refrigeration men greater flexibility of application and increased profit opportunities ...

THIS completely packaged refrigerating unit can be installed overhead . . . behind a wall . . . or under a counter. Widely used in factories, restaurants, motels, schools, etc.; or as a pre-cooler for beverage dispensers; as a capacity booster for ice-cube-making machines, for industrial process cooling, etc.

(Above) Temprite Remote Water Coolers in four models: R-6, R-14, R-17W, R-24W.

A complete line of TEMPRITE self-contained water coolers, wall fountains and accessories also available. (Model WF-4000 Wall Fountain illustrated.)

Consult Yellow Pages under "Water Coolers" or write for literature and distributor's name.

Manufactured under rigid quality control by

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Rush me details on Temprite Remote Water Coolers.

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Gas Group Joins 3M To Develop Furnace Generator

ST. PAUL — Minnesota Mining & Mfg. Co. announced that a group of gas utilities has joined with 3M in a cooperative development program for the design of pre-production prototypes of a thermoelectric furnace generator.

Participants in the program include Michigan Consolidated Gas Co., Brooklyn Union Gas Co., Consolidated Natural Gas System, Southern California Gas Co.-Southern Counties Gas Co., Peoples Gas, Light & Coke Co., Laclede Gas Co., Minneapolis Gas Co., Northern Illinois Gas Co., Lone Star Gas Co., and the Columbia Gas System.

"At the conclusion of the 18-month program," 3M said, "each of the participating gas companies will receive an operated furnace system in which a thermoelectric generator — converting heat from the furnace combustion chamber into electricity directly, without moving parts — supplies the power required for operating blower or pump motors, making the furnace completely independent of any outside power source."

The 3M company emphasized that its commercial interest in the program is restricted to the manufacture and sale of thermoelectric devices and other furnace components and that the St. Paul firm has no intention of manufacturing furnace systems.

When the development program is completed, furnace manufacturers will be invited to use the prototypes and the accompanying engineering data as the basis for incorporating thermoelectric generators in their production model furnaces, it was stated.

Borg-Warner Reports On Thermoelectric Items Created In '60

CHICAGO — Reporting results from the acceleration of Borg-Warner Corp.'s research and development program over recent years, Roy C. Ingersoll, chairman, and Robert S. Ingersoll, president, cited new thermoelectric commercial and defense products that were created in 1960.

Leading this group are the Norge thermoelectric refrigerator-freezers which will be installed this year in 500 rooms of the new Sheraton-Chicago hotel and subsequently in the Sheraton-Lincoln hotel, now under construction in Houston, Texas. (See March 20 issue, page 10.)

The Norge refrigerator-freezer is one of several new Borg-Warner thermoelectric products first developed at the corporation's Roy C. Ingersoll Research Center, at Des Plaines, Ill.

Borg-Warner's York Div. is working with the Research Center on similar developments in its field of air conditioning and refrigeration. York has already penetrated the defense field in thermoelectrics, working with the Navy on a unique food refrigeration system for submarines, it was stated.

Pesco Products Div. is offering a thermoelectric cooler package as a standard industrial item. This product followed success by the Borg-Warner Research Center in developing a miniature infrared detector cooler package for the Air Force, to be used in airborne aircraft and missile detecting systems.

Borg-Warner sees many applications for thermoelectrics in the corporation's line of major appliances, commercial and industrial refrigeration equipment, air conditioners, and other cooling and heating devices.

Schlessel Named

RICHMOND HILL, N. Y.— Joseph H. Schlessel has been appointed executive vice president of Slant/Fin Radiator Corp., manufacturer of baseboard and commercial finned tube radiation, according to M. Dubin, president.

Hughes Device Freezes Water on Power from 2 Flashlight Batteries

POWER from two flashlight batteries can freeze water by means of a new thermoelectric device developed by Hughes Aircraft Co. When a switch reverses the current flow, the device becomes a heater and the ice disappears in a wisp of steam.

* * *

CULVER CITY, Calif. — A thermoelectric device "so efficient it can freeze or boil a drop of water on power from two flashlight batteries" has been developed by Hughes Aircraft Co. scientists, the company disclosed.

In clusters, the device's uses vary from maintaining room temperature in a space ship to operating an instant-defrosting refrigerator with no moving parts, according to Gordon G. Messick of the Hughes aerospace research and development laboratories.

(A spokesman noted that the company has no plans at present to market the device commercially nor is any effort being made to adapt it to commercial uses. It was developed for spot-cooling or heating of components in space vehicles.)

Messick demonstrated a model and presented a technical paper on the development, co-authored by Robert M. Jepson, at the Institute of Radio Engineers winter meeting on military electronics in Los Angeles.

Messick said Hughes "developed a new technique of fabricating the thermoelectric material that makes it possible to operate at one-tenth of the current that was previously needed."

Heating efficiency of the Hughes device, he added, is up to eight times as high as conventional resistance heaters such as an electric toaster or stove elements.

According to Messick, Hughes has built a three-stage "cascaded" cooler that brings temperature down to -100°F and is being used to cool an experimental infrared detector. The device requires only two amperes of current, he pointed out.

"A heat-control oven is also being built which will hold an even 70° temperature in weather varying from 40 below zero to 180 above while using less power than an automobile headlight," he said. "Even greater temperature extremes and higher efficiency is expected as newer materials are discovered."

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Anco Cooling Water Treatment keeps the water side clean and free of rust and scale. Circulating water has room to flow freely . . . metal surfaces are protected from destructive pitting. This protective compound is both convenient and easy to use . . . just place can(s) in condenser pan or tower basin where agitating water can gradually dissolve contents. One treatment will last for about a month. Ask your supplier about this economical protection for your cooling system, or write for literature.

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Anco's dry formula is one of the most popular compounds for removing rust and scale deposits. It works while unit stays in operation. See for yourself how effective Anco Condenser Cleaner really is.

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Firm Expects To Save by Spreading Burner 'Start-Up' Service over Several Months

By C. Dale Mericle

DURHAM, N. C.—By spreading its annual service check-ups on heating plants over a period of several months instead of trying to do them all at the fall start-up time, Carolina Air Conditioning Co., Inc. here hopes to save considerable money and give the customer a better job.

"During the fall rush our servicemen often work 70 to 80 hours a week at expensive overtime rates," explains Howard Shannon of the company, which is headed by Frank T. Daddario as president.

"But we have to have servicemen the year round to handle our air conditioning load during the summer," points out Shannon.

"Our aim is to spread out service as evenly as possible over 12 months so we can eliminate overtime in the fall," he said.

Considerable education of the customer is required, Shannon also explained.

"The customer feels that if an oil or gas burner has to be checked for a season's operation it should be done before the heating season starts, but this isn't necessarily true," he commented. "In fact, we can often do a better servicing job in midseason when the furnace is operating under normal conditions.

"Servicing a burner in midwinter is no problem," Shannon continued. "The serviceman turns off the furnace when he first arrives, and then he proceeds to check and oil the blower, change filters, etc. By the time he's done these things, the burner and combustion chamber have cooled down to the point where he can work on them. It's no different than conventional emergency service on a burner in winter."

The routine check-up service should be done every 12 months, of course, so Carolina Air Conditioning Co. is in the gradual process of shifting the dates for individual customers so that this work will be spread over the period from September through March or April.

Customers are being grouped by area and a card system is being established so that the scheduling will be automatic.

"It will probably take us three years to switch over completely," Shannon guesses.

"Not a single customer has objected to our plan," he added.

On the Typhoon Treasure Trail

FOLLOWING the recent Typhoon sales meeting in Jamaica, West Indies, distributors who qualified with equipment orders assembled on the beach to dig for buried treasure chests. Here Tom Barrett, Barrett Associates, Inc., Brookline, Mass., gets plenty of assistance in unearthing his treasure from John Wilcox, Typhoon district sales manager, attired as Capt. John Hook, and his assistant Windy, attired as men would like her attired.

Hydronic Industry Claims Larger Share Of Home Heating Market During 1960

NEW YORK CITY—The hydronic industry in 1960 again captured a larger share of the home heating market even though shipments were off slightly compared to 1959, the National Better Heating-Cooling Council reported.

In the wake of an 18% decline in housing starts, hydronic boilers held to a 5% decline, according to the council.

A comparison of shipment figures covering residential equipment indicates that hydronics increased its share of the home heating market by 1.7%, the BHC said.

"With new markets opening to hydronics and established markets expanding, we expect the industry to carve out for itself an even larger slice of the home heating market in 1961," BHC President Irvin L. Rechkemmer said.

Statistics released by BDSA and the Institute of Boiler & Radiator Manufacturers show that in 1959 cast iron and steel boiler shipments totaled 320,000. The same reporting agencies listed 1960 shipments at 304,314 cast iron and steel boilers.

"A comparison of the figures indicates cast iron and steel boilers accounted for 19.1% of all shipments in 1959 and 20.8% in 1960, for a net gain of 1.7% for the year," the council pointed out.

"These figures do not reflect the totals for copper tube boilers, for which there is no reporting agency. If copper tube boiler shipments were included, the percentage figure for hydronics would be higher. Copper tube boiler shipments for 1959 previously were estimated at 30,000."

Worthington Air Conditioning Contract--

(Continued from Page 1, Col. 4)

Worthington is providing 6,700 fan coil air conditioning units—the largest single order of its kind in the company's history.

Located in a six-block area running from 23rd to 29th Sts., between Eighth and Ninth Aves., the development will include a shopping center, playgrounds, parking facilities, gardens, as well as service and community rooms.

Apartments will range from 2 rooms to 5½ rooms. Tenant owners will invest approximately $650 per room. Rentals are expected to average $22-23 per room per month.

"The Worthington fan coil air conditioning units in the new development consist of a basic water coil and air distribution fan with speed switch, control valve, motor, and filter," the company pointed out.

"The units allow comfort control on a person-by-person basis, with a minimum of complication in fitting the equipment to the structure. They can perform all the important functions of complete air conditioning: circulation, ventilation, filtering, heating, cooling, dehumidification.

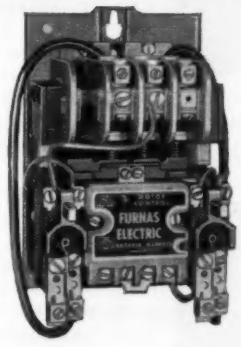
"A Worthington unit will be installed in each living room and bedroom in the new housing development. The units are connected to a supply and return water piping system emanating from a central heating and cooling system which delivers hot or chilled water.

"All the air handling takes place at each room conditioner location, and conventional ductwork to the units is not required. The water flow and air delivery may be individually regulated at each unit."

A manual control switch is furnished with all models, for individual regulation of air delivery.

Consulting Engineer is William H. Dusenbury.

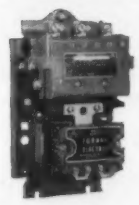
new CURRENT RATED STARTERS



Through 53 amps, rated in full load and locked rotor. Can be used for both 220 volts and 440 volts.

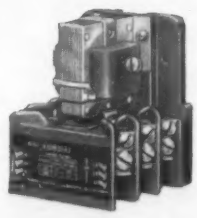
new CURRENT RATED CONTACTORS THROUGH 90 AMPS.

Furnas Electric offers a complete line of current rated contactors through 90 amps meeting requirements of the Air Conditioning and Refrigeration Industry.



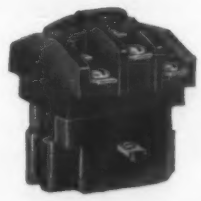
90 amperes

Contactors through 40 amps, 2, 3 and 4 pole with interchangeable mounting dimensions are available for compressor and electrical heating applications.



40 amperes

2 and 3 pole, 25 amp contactors are used for unattended domestic and commercial applications, and for resistance heating applications.



25 amperes

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SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

Keeping Close Control of the Service Department

8 Forms Guide 16-Truck Operation, Keep Management Alert to Trouble

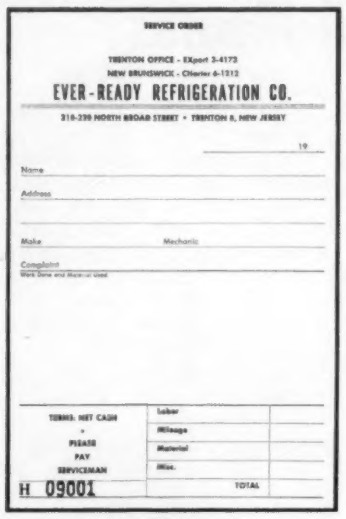
NEW ORLEANS — Types of service records he keeps and their value in maintaining a close control over the service department were explained by Milton M. Katz, owner of Ever-Ready Refrigeration Co., Trenton, N. J., to fellow members of the National Commercial Refrigerator Sales Association.

Discussing the records in logical sequence, Katz, who has been in business since 1931, started with the incoming service call. Ever-Ready's dispatcher has in front of him two plain loose leaf books, one yellow and the other white. In the yellow book he lists routine calls and in the white book emergency calls.

"No calls in the yellow book are assigned until all calls in the white book are taken care of," Katz explained.

"During the summer rush, when we can't possibly give immediate attention to every call, we give preference to refrigeration calls where product loss is at stake. We let air conditioning calls wait.

"When all the calls in the white book are taken care of, the dispatcher picks out the important calls in the yellow book and gives them preference, letting the less important calls wait until we can get to them."


SERVICE ORDER

TRENTON OFFICE - EXport 3-4172
NEW BRUNSWICK - Chester 6-1212

EVER-READY REFRIGERATION CO.

310-220 NORTH BROAD STREET • TRENTON 8, NEW JERSEY

19

Name
Address
Make Mechanic
Complaint
Work Done and Material Used

TERMS: NET CASH
PLEASE PAY SERVICEMAN

Labor
Mileage
Material
Misc.
TOTAL

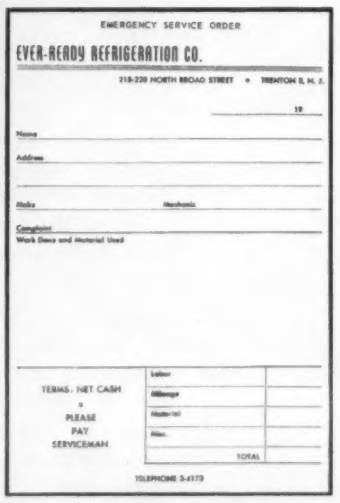
H 09001

FORM 1

Servicemen are assigned calls as they come into the shop or as they call in when they are out of town.

Katz, who operates 16 trucks, said that for each call, the dispatcher makes out a service order (Form 1). This is a machine form and is made out in triplicate. The first two copies are given to the serviceman and the third remains in the machine as the office copy.

When the serviceman completes his call, he finishes filling out the form. He has the customer sign the top copy and leaves the second copy with the customer. Katz noted that there is no specific place on the form for the customer's signature. "Why put it on?" he asks. "Did you ever see a customer yet who signed where he was supposed to?"


EMERGENCY SERVICE ORDER

EVER-READY REFRIGERATION CO.

218-220 NORTH BROAD STREET • TRENTON 8, N. J.

19

Name
Address
Make Mechanic
Complaint
Work Done and Material Used

TERMS: NET CASH
PLEASE PAY SERVICEMAN

Labor
Mileage
Material
Misc.
TOTAL

TELEPHONE 3-4179

FORM 2

Form 2, the emergency service order, is practically identical with the service order and serves the same function. Emergency service order forms are carried by the servicemen and used when they must telephone the office for their next assignment. They are also used for night and Sunday calls.

"Our policy is that there is no call made without a ticket," Katz said.

MATERIAL USAGE TICKET

EVER-READY REFRIGERATION CO.

TRENTON ☐ NEW BRUNSWICK ☐

19

CUSTOMER INSTALLATION
ADDRESS SERVICE CALL
CITY
SERVICE TICKET NO. MECHANIC
EQUIPMENT

MATERIALS USED

QUAN.	DESCRIPTION	COST	SELLING

JOB COMPLETED YES ☐ NO ☐ TOTAL

C.O.D.	CHGE	S. R.	C. B.	W.C.M.G.

OUTSIDE MATERIAL PURCHASED USED ON THIS JOB

QUAN.	DESCRIPTION	SLIP NO.	SOURCE	AMOUNT

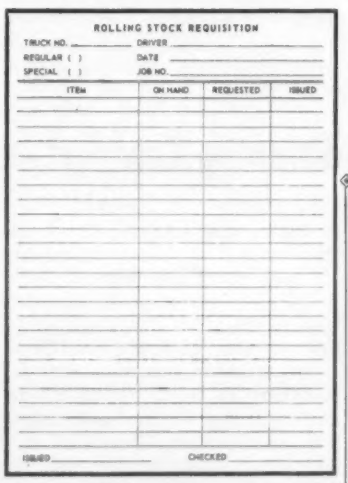
FORM 3

Form 3 is a Material Usage Ticket that the serviceman also makes out for each call where he is required to use materials or parts. On the upper part of the form, he records the materials and parts he uses out of inventory. On the lower part, he notes any materials or parts he had to buy outside.

In response to a question, Katz noted that his servicemen carry a book with all parts and material prices in it. Thus he knows how much to charge for any part.

"We have no secrets from our servicemen," he declared. "We think the serviceman would look stupid to the customer if he did not know how much to charge for parts."

An important line on this form, Katz said, is the notation "Job Completed." It helps the office keep track of jobs that cannot be finished in one call.


ROLLING STOCK REQUISITION

TRUCK NO. DRIVER
REGULAR ( ) DATE
SPECIAL ( ) JOB NO.

ITEM	ON HAND	REQUESTED	ISSUED

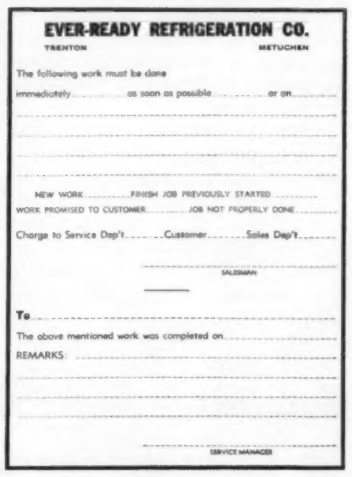
ISSUED CHECKED

FORM 4

The form must be turned in with the service ticket.

The abbreviations represent (from l. to r.) cash on delivery, charge, service reserve, call back, and no charge under guarantee.

Form 4 is a rolling stock requisition with which the serviceman requests replacements for his truck inventory. No stock is issued to a truck without this form. Through it, the company keeps close tabs on inventory in its trucks.


EVER-READY REFRIGERATION CO.

TRENTON METUCHEN

The following work must be done
immediately..... as soon as possible..... or on.....

NEW WORK..... FINISH JOB PREVIOUSLY STARTED.....
WORK PROMISED TO CUSTOMER..... JOB NOT PROPERLY DONE.....

Charge to Service Dep't..... Customer..... Sales Dep't.....

SALESMAN

To.....

The above mentioned work was completed on.....

REMARKS:

SERVICE MANAGER

FORM 5

Form 5 is an order to the service department that, fortunately, is rarely used. It is employed when a customer calls directly to Katz or a salesman about work he wants done right away or about a complaint he feels hasn't been taken care of.

The form is filled out in triplicate. One copy goes to the service manager, one to the salesman on the account, and the third goes to Katz.

When the service manager gets this order, he knows he is to take care of the problem immediately, either himself or through a picked serviceman.

When the work is completed, the service manager returns the form to Katz so that he knows the customer has been taken care of. If Katz does not get the form back within three days, he himself checks up on the service manager to see what the delay might be.

(Continued on next page)

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Wholesalers . . . be sure and ask for a free supply of the new RBM pocket size *REPLACEMENT KIT BROCHURE.* Your customers will appreciate them.
Order your replacement kits from our Chicago Warehouse, 3501 W. Addison, Chicago 18, Illinois.

For technical information write or phone:

RBM Controls Division
ESSEX WIRE CORPORATION
Logansport, Indiana
FACTORIES: North Manchester and Logansport, Indiana

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Chicago 8, Ill.
EXPORT DEPT.
13 E. 40th St. New York

DAILY TIME SHEET
EVER-READY REFRIGERATION CO.

Report of _____ Day _____ Date _____

CUSTOMER	SLIP NO.	TIME STARTED	TIME FINISHED	TIME CONSUMED	IS WORK COMP.	CHARGE TO A.C.	C.O.D.	DOES CUSTOMER NEED ANY NEW EQUIPMENT? PLEASE ASK!

REPORTS MUST BE TURNED IN DAILY BY ALL SERVICE MEN, INSTALLATION MEN, DELIVERY MEN, CARPENTERS AND HELPERS.
IF NO REPORT IS TURNED IN, IT WILL BE ASSUMED YOU DID NOT WORK THAT DAY.

FORM 6

(Continued from preceding page)

Form 6 is the daily time sheet, which Katz insists must be turned in for every day worked. As noted on the bottom of the form, if it is not turned in, the assumption is that the man did not work and he is docked a day's pay.

"It only takes once to impress on them the importance of turning in this sheet," he averred. "They usually don't forget a second time."

Entries are self-explanatory, but the entry in the far right column is the most important, in Katz' opinion. The heading says, "Does the customer need any new equipment? Please ask!"

He admits that he has to keep after them to do this, but it is very productive of new sales leads.

NAME _____ ADDRESS _____

C.U. NO.	QN	MAKE	MODEL	GAS	BELTS	MOTOR	SIZE	FRAME	SHAFT	CONTROL

DATE	WORK DONE AND MATERIALS USED	CHARGES	PAYMENTS

EVER-READY REFRIGERATION CO. SERVICE RECORD

FORM 7

Form 7 is a service record card kept on file in the office. A card is made out for every Ever-Ready installation and service customer. In the column at left, every condensing unit on the job is listed by number. The second column tells to what equipment it is hooked up. Succeeding columns contain pertinent information about each unit that helps tell the serviceman what parts he should carry with him when making the service call.

Bottom portion of the card gives the history of the installation, showing all service work done on that particular installation and materials used, along with a record of charges and payments. The last column is particularly significant, Katz said.

DESCRIPTION _____

UNIT _____ LOCATION _____ SUPPLIER _____

MIN. _____ MAX. _____ COST _____ LIST PRICE _____

DATE	IN	OUT	BAL	DATE	IN	OUT	BAL	DATE	IN	OUT	BAL	DATE	IN	OUT	BAL

FORM 8

Form 8 is an inventory record kept by the stock clerk. It indicates how many units of each part the company has on hand and how many it should have in stock to take care of normal business.

"This record keeps us from ordering too many or too few of each part," Katz said.

In a question - and - answer period, Katz added the following comments on service:

The ratio between the serviceman's pay and the labor charge to the customer must necessarily vary according to locality. While the rule of thumb may be to charge the customer twice the base pay of the serviceman, it can't be done in every area.

"When you have a lot of independent servicemen in your area who don't know what their overhead it, it's ridiculous to think you can charge 100% or 207% over cost. You will lose all your customers if you do," he commented.

Mileage is part of the service charge, he noted. Nothing extra is charged for mileage if the call is within six miles of the office. Beyond that point, 10 cents per mile is added for each mile over the six mile limit.

What is his policy on lost refrigerant during the free service period? "We don't argue about it if it is not caused by something obviously beyond our control. We just recharge the system. But if something has happened that is beyond our control, we charge for it."

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Company _____

Title _____

Address _____

City _____ Zone _____ State _____

What Does Owner Expect from Air Conditioning

Common Sense on Installation, Set of 'As Built' Plans, and Real Warranty Service, Says Kelly

LOS ANGELES—What does the office building owner want from the air conditioning subcontractor?

In addition to a workable installation, he expects common sense, a set of "as built" plans, and real warranty service, Louis A. Kelly, building manager for the California Federal Savings & Loan Association, advised the Refrigeration & Air Conditioning Contractors Association of Southern California, Inc., recently.

Kelly qualified for his role as critic of air conditioning contractor practices through his work as liaison engineer between the loan association and the architects and contractors in the construction of many of the association's buildings. He is also a member of the American Society of Heating, Refrigerating & Air-Conditioning Engineers.

From the viewpoint of the air conditioning contractor, he said, the "soft underbelly" of an installation contract lies in profit-eating revisions. While unforeseen when bidding the contract, these revisions can many times be avoided by the use of common sense on the part of the contractor.

Describing such a situation, Kelly related:

"When you start to put your equipment in . . . you suddenly find out that where you were supposed to have a straight run for your ducts, you run into a pipe riser, or an electrical problem, the ceiling is too low, or the pipe riser is in your way, so you have to revise.

"Let me give you one example. I know of one job where the ducts were run down the center of the ceiling. According to the drawings that were given to the people by the architects, everything was perfect.

"The air conditioning contractor just ran the ducts down the center, covered them up, and there they were.

"But what happens? Here come the electricians. They want to put the lights in; recessed lights—recessed fixtures. Everything was fine until they got to where the ducts were. The ducts were lower than the recessed lights.

"So what happens? They have to raise the ducts. Who pays for it? The building didn't. The air conditioning man paid for it.

"Why? Now you'll say he was supposed to put it in according to plans. But he didn't check the plans carefully enough to find out that it wasn't right. He was held to blame.

"And the big kick? It was an awful beef between the owner and the air conditioning man. The air conditioning man had to back down, he lost money.

"I think, gentlemen, that there is one thing that should be on every plan.

"First of all we have dimensions. The second thing we should have on them is a little bit of common sense.

Why Common Sense?

"Why? Because if you don't look ahead you are going to lose money. Or, if the owner loses money, you are going to have a sour job and you'll never get a good recommendation from him. He'll say that you did this, you did that. Maybe it's not your fault.

"But gentlemen, doesn't it stand to reason that if you'd look ahead, if you tried to anticipate these things, you could do it?

"Would it not be prudent if each sub asked for and received a set of plans for the other trades? With these in his possession he could check his run of ducts. If he saw where some 90-day wonder in the architect's office had a grand reunion of pipe risers, conduit waste lines, and air conditioning ducts converging at one point, would he not save himself time and money to correct it on the prints rather than on the job?

"Let me give you one example of the lack of common sense in another trade.

"This particular contractor had warned his men never to put a fixture in unless it had the seal of the Underwriters Laboratories approval on it.

"Four full floors of fixtures were in. The inspector came around and ordered them all out. The foreman got panicky and took them out.

How It Helps

"A little common sense, a little plain ordinary thinking on the part of the contractor, would have been to have the foreman, his expeditor, or his estimator, see to it that all fixtures had the UL seal of approval on them before they were installed.

"Again, if the foreman hadn't lost his head and panicked, they could have had the seal pasted on. These fixtures were approved but the manufacturer neglected to put the seal on them.

"Now who do you thing paid for this one? I can assure you, not the building.

Building Managers List Troubles

"When I found out that I was going to talk to your group, I contacted quite a few building managers and asked them if they had any outstanding difficulties. I was quite surprised at what I heard. Here are a few of them:

"Dampers on a dual duct system not hooked up.

"Link connecting cold and hot dampers not connected to one of the dampers.

"Dampers hooked up backwards.

"One half inch space between two sides of the duct and the diffuser.

"Thermostat connected to an

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Contractor?

He Who Can't Foresee Trouble Forfeits His Money, Goodwill

outside office but controlled from the inside corridor.

"Thermostats mounted on wall by window where sun can pour on to thermometer.

"Improper balancing of system. Some diffusers supplying no air at all while others are blowing papers off the desk.

"This list of, shall we say, difficulties is in effect called the punch list.

"At the completion of the job the architect furnishes the building manager and each trade with a list of corrections or omissions. He calls this the punch list.

"Why it was named so I really don't know unless it is due to the fact that you have to keep punching to get it completed.

Fight Like Hell To Get Plans

"Upon completion of the job, every single trade should give the building owner an 'as built' set of plans. Too many times you have to fight like hell to get a set of 'as built' plans.

"I have built two buildings and I still don't have an 'as built' set of plans for either of them, from any one of these people. This is probably my own fault. I certain should have a set and so should the sub.

"Too many times the building manager calls for these plans and is put off and put off and given the old run around until in disgust he gives up. But I can assure you that it does not leave a very good taste in his mouth when he thinks of that particular sub.

What Does Your Warranty Mean?

"Now let's go to warranties. What do you mean when you put in your specifications that you agree to see to it that for the first year the machine that you put in is going to function perfectly?

"Is this not what you agree to do when you sign that on the specifications? That's the warranty you give. Do you not get a warranty from the company you buy your equipment from?

"So what happens? We have a little trouble with the machines. So we call you and tell you 'Mr. So and So, we are having trouble. We do not get the cfm's we are supposed to get, or the compressor is faltering, we cannot maintain steam pressure, a motor is running hot, etc.'

"You send a man over, he looks at it. You ask him 'What in the hell is wrong with it? Why doesn't it work?'

"He is probably an apprentice (you can't afford to send a journeyman out on a job that is closed). He looks wise, gives you a lot of gobbledy-gook, tells you it is functioning the way it's supposed to and he goes away.

"A couple of days later we have the same trouble. We call again and maybe about a week later you send a man out. He brings a wrench out and he adjusts a nut here and a bolt there and he says everything's O.K.

"He leaves and three or four days later we have the same thing and then what happens?

"We get so mad that we send out and bring someone in to fix the thing. The minute we do that, we cancel the warranty.

"Is that what you want? Is that what you're looking for? Sometimes as a building manager I think that that is exactly what you're looking for.

"Gentlemen, I would like to put the thought in your mind that when you signed up for a warranty, if you would see to it that you cheerfully and efficiently take care of that warranty, you would be 100% better off.

"You would leave a better taste in the owner's mouth and the job that you put in that building would not be a sour job—to the extent that if anybody said did 'X' company put the job in, I would say 'yes, and dammit, they'll never put another one in any building that I have.'

"Instead of that, I would say, 'yes, they did, and they took care of it.' Maybe it might cost you a couple of bucks more. You can write it off on your income tax as expense.

"Gentlemen, there is one commodity that you cannot buy with money and that is goodwill. If you have goodwill and a satisfied customer, you never have to think about spending money to advertise this fact.

"The finest piece of advertising that you can get is a satisfied customer—the word of mouth approbation of a job that you have done—well."

During a discussion period following his talk, Kelly suggested that one way that building managers and air conditioning contractors might be able to cooperate as groups would be for RACCA to show them the advantage of having regular service on refrigeration and air conditioning systems.

Having these systems serviced by qualified men on a regular basis would save them money in the long run, he indicated.

This is a matter, Kelly said, of air conditioning engineers educating the building managers, who all too often try to save on everything below the first floor in a building. Consequently, they often neglect their mechanical systems to their ultimate loss.

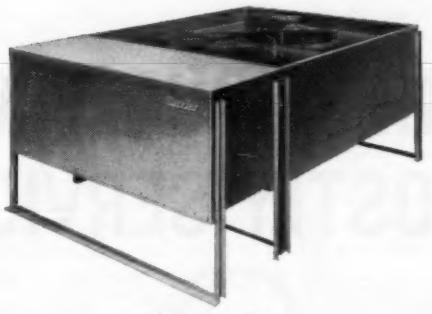
Calif. May License Acoustical Contractor

SACRAMENTO, Calif. A specialty classification up for adoption will include acoustical contractors in a reworded class C-2 which now covers only insulation contractors.

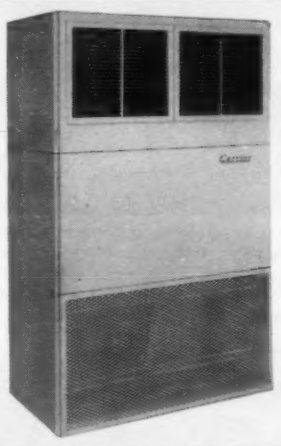
John E. Chadwick, registrar of contractors, said the revised C-2 will be on the agenda for consideration by the Contractors State License Board at the next meeting to be held in San Francisco April 7.

It is possible the agenda will also include the proposed new specialty contractors' classification for water softening installations.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.



OUTDOOR UNIT



INDOOR UNIT

PRACTICAL EVEN IN COLDER CLIMATES!

Carrier 10 and 15 ton Heat Pump Weathermakers

These new Carrier two-piece Heat Pump Weathermakers* offer many advantages for heating and cooling factories, department stores, theaters, banks and restaurants. Their improved design, combined with the heat load from concentrations of light, people or machinery, makes it possible to operate them as economically in colder climates as many types of conventional systems.

An all-electric, air-cooled system, the Carrier Heat Pump Weathermaker requires no combustion fuel in winter and no water in summer. And because a single system handles both cooling and heating, there is an overall first-cost savings for many new buildings . . . as well as complete elimination of the normal expense resulting from seasonal start-ups and shutdowns. There is also space saving through the elimination of a boiler, smokestack, water tower and fuel storage facilities.

To meet installation requirements, this two-piece Weathermaker offers a wide variety of arrangements. The indoor section may be suspended horizontally or vertically. Vertically, it may be hung from a wall or it may stand on the floor. Air distribution may be through ductwork or accessory plenum. The outdoor section, with its extremely low silhouette, is ideally suited for roof-top installation.

These Weathermakers are typical of the products constantly being introduced by Carrier to help our dealers corner the market. The products cover air conditioning, heating and heat pumps. Get the facts about a Carrier franchise from your Carrier distributor listed in the Yellow Pages. Or write Carrier Air Conditioning Company, Syracuse 1, New York.

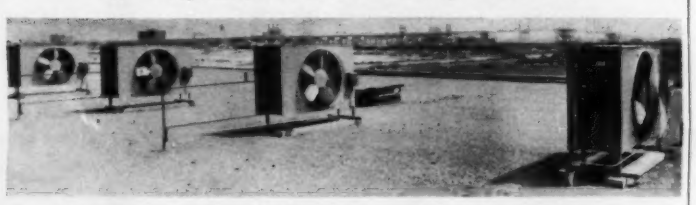
**Reg. U. S. Pat. Off.*

Carrier Air Conditioning Company

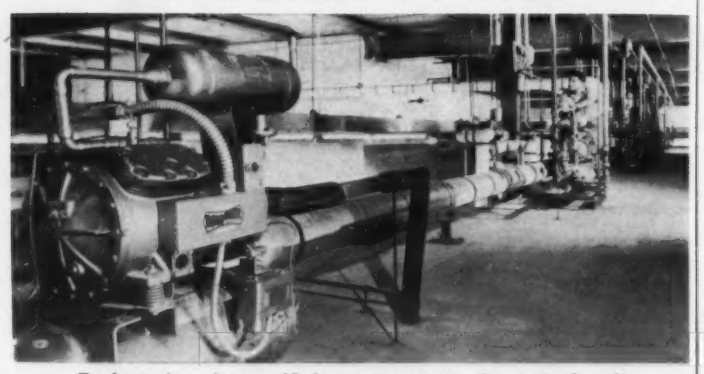
Air-Cooled Split System Cools Bananas In Philadelphia

PHILADELPHIA—Believed to be the first installation to use air-cooled equipment in a split system for banana storage is the Levin Banana Storage & Food Distribution Center here. Twenty-eight rooms such as pictured above, measuring 19 by 42 ft each, holds 2½ truckloads.

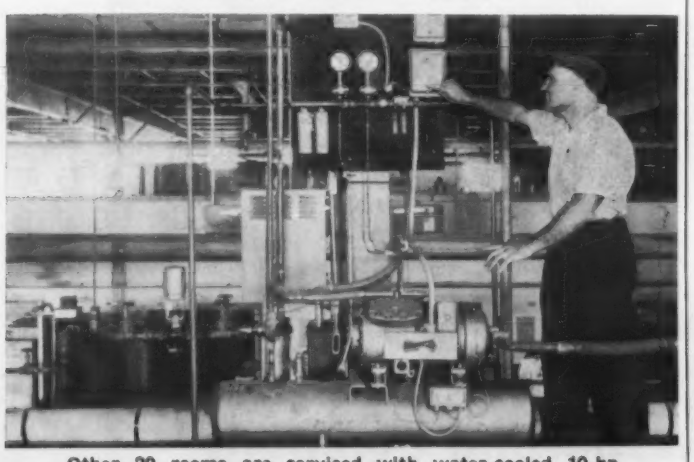
Eight of the banana rooms are serviced by ceiling mounted horizontal air handling units such as these. They provide cooling and proper air distribution. Temperatures must be maintained between 56° and 62°F with 85% rh, using 20° temperature difference on evaporator coils.



Eight Dunham-Bush 20-ton air-cooled blower condensers are mounted on the roof, each serving a separate room. Condensers are oversized to meet extremes.



Each system has a 10 hp compressor. On top of unit is a Heat-X pressure stabilizer to provide proper head pressure for wintertime operation.



Other 20 rooms are serviced with water-cooled 10-hp Brunner condensing units. Five compressors are tied together to a single 50-ton cooling tower. Consulting engineer for Levin was Food Dispatch Co., New York City. Contractor was Arthur Lehman, Inc., Vineland, N. J. Wholesaler was Fleck Bros. Co., Camden, N. J.

'Chain Stores Plans Same as '60'

Hussmann Orders for First 2 Months Run a 'Little Ahead of Last Year'

ST. LOUIS—Orders for the first two months of 1961 were "a little ahead of last year, but the increase is not sufficiently great to give us a clue for a longer period," W. B. McMillan, board chairman of Hussmann Refrigerator Co., told stockholders and company officials during the firm's annual meeting.

In the annual report to stockholders, McMillan and John R. Caulk, Jr., president, said indicated plans for 1961 of the major corporate chains were approximately the same as those which prevailed in 1960.

"It should be noted," the report said, "that there is a gradual change in their programs from the construction of entirely new stores to major remodeling of older stores that are well located and established but whose equipment and arrangements are outmoded. . . .

"A year ago we estimated that the largest amount of increase in sales would come from stores affiliated with voluntary or cooperative groups or by local chains. This prediction was borne out by the facts and we believe a similar condition will exist in 1961. . . .

"We share the generally accepted estimate that 1961 will show little, if any, improvement over 1960 for the American economy as a whole, but we are confident that our improved organization, facilities, and plans, together with a slightly higher backlog of unfilled orders, will result in an improvement."

Two additions were constructed during the year at the Haddonfield, N. J. plant which increased its manufacturing area approximately 50%. These additions permit the adding of shelving and walk-in coolers to the other food store equipment items manufactured there for eastern customers.

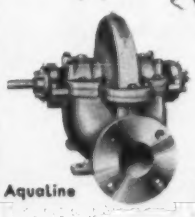
Additional warehouse and office facilities were completed at the Canadian plant. This is now a fully-integrated plant making a full line of products and affording a 177,000-sq ft plant area, the report noted. At the Menlo Park, Calif. plant, it has been necessary to lease additional space.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

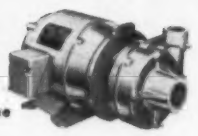
THESE QUALITY PUMPS CUT COSTLY SERVICE CALLS

PEERLESS PUMP

PEERLESS END SUCTION AND SIDE SUCTION AIR-CONDITIONING PUMPS COST LESS—LAST LONGER



Aqualine



Fluidyne

PEERLESS AQUALINE® Pumps are available in sizes to 8-inches. Capacities to 2600 gpm, heads to 280 feet. Temperatures to 250°F. Horizontal split case design allows quick inspection without disturbing piping.

PEERLESS FLUIDYNE® Pumps are compact end-suction design. Redi-Packed in 22 sizes from 1 x 2 x 6 to 2½ x 3 x 10, for immediate shipment. Heads to 230 feet, capacities to 300 gpm, motors from 1 to 15 hp.

If there is a key word to describe Peerless Pumps, that word is QUALITY. You'll find it in the way the pumps are designed. You'll find it in the way the pumps are made. And you'll find it most apparent in the way these pumps operate. Remarkably long trouble-free operating records are routine with these better-made pumps.

But QUALITY is just the start of a long list of important features that recommend the Peerless AquaLine and Fluidyne line of pumps for your water handling jobs. There's immediate availability from ready-to-ship stocks. Complete hydraulic coverage for every type of application. Compact streamlined design that gives you space-saving good-looking layouts. And fast, on-time service from a network of warehouses and field offices.

ATTENTION DEALERS: A limited number of Peerless Aqualine and Fluidyne pump dealerships are available. Please write for complete information.

Putting Ideas to Work

fmc

Peerless Pump Hydrodynamics Division

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2005 Northwestern Avenue, Indianapolis 8, Indiana
Gentlemen: Please send me immediately:
☐ Bulletin B-2319 on Peerless Fluidyne Pumps.
☐ Bulletin B-2100 on Peerless Aqualine Pumps.
☐ Name and address of nearest Peerless Dealer.

Name _____
Address _____
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State _____

Electrically Operated Solenoid Valves (2)

(Selection and Application)

By Clifford Bastle, Project Engineer, Refrigeration Section, Controls Co. of America

PERFORMANCE CHARACTERISTICS

The M.O.P.D. (maximum operating pressure differential), frequently referred to as the "lift," is the maximum pressure differential across the valve orifice that the solenoid is capable of operating against. Electromotive force necessary is the product of this M.O.P.D. and the orifice cross-sectional area.

The applied voltage to obtain the rated M.O.P.D. is usually 85% of the nominal electrical rating for alternating current and 80% for direct current. These are Underwriters Laboratories, Inc. requirements but sometimes vary for specific applications.

In the impact method of plunger operation the viscosity of the medium tends to retard the plunger velocity. Therefore, when used with fluids such as oil or water the M.O.P.D. is appreciably decreased as opposed to gases or air. The M.O.P.D. is substantially the same in direct and air-gap pull solenoids regardless of media.

With a constant electrical input, alternating current solenoids have a M.O.P.D. approximately 20% greater than direct current.

In an a-c circuit the current draw is a function of its reluctance. The relationship of the plunger at rest to the magnetic or coil center increases this reluctance and consequently the current. This appreciable increase in current (in-rush) initially, adds work and increases the M.O.P.D. The "in-rush" current is about 3 times the "steady-state" current.

In a d-c magnetic circuit the current is a function of the coil resistance only and remains constant regardless of plunger position.

The M.O.P.D. is not to be mistaken for "Safe Working Pressure" which is the safe maximum pressure and pertains to over-all-strength. The ultimate burst pressure is usually a minimum of 5 times the safe working pressure.

The electrical (wattage) power input of an a-c solenoid results in useful work in the form of electromotive force plus the following three losses: heating effect due to wire resistance, hysteresis, and eddy currents. The maximum wattage input is primarily determined by the amount of heat that can be dissipated by the coil. In general, the surface area of the coil is the limiting factor.

A solenoid coil energized continuously will eventually reach a saturation temperature which must not exceed allowable limits of the insulating materials used in the construction of the coil. Therefore, to increase the orifice area of M.O.P.D. it is also necessary to increase the physical size of the coil due to the additional force (wattage input) required.

Intermittent Duty

When the solenoid application is intermittent duty only, assuming a constant physical size and coil materials, the electrical input may be increased in accordance with the duty cycle.

In a d-c solenoid the only power loss is the heating effect. This loss is substantially greater than an a-c solenoid for a constant electrical input. This difference of component losses in a-c and d-c circuits will result in a slightly higher saturation temperature for the latter.

The preceding paragraphs on orifice area and pressure can be summarized as to their relationship to flow by the following general capacity equation.

$$Q = KCA \sqrt{\frac{P}{\rho}}$$

Where

Q = Flow in volume/unit time
K = Conversion constant
C = Orifice coefficient
A = Orifice area
P = Pressure drop in force/unit area.
ρ = Density in weight/unit volume.

From the above formula it can be readily seen that, other than the physical size, the only other factor influencing the flow is the orifice coefficient. This coefficient can be increased by having a minimum amount of restriction before and after the orifice in the valve construction.

'Seat-Leak'

The flow through the valve orifice when in the closed position is generally referred to as "seat-leak." The factors which affect this flow are seat and stem material, pressure drop across the orifice, orifice configuration, and in a spring-loaded solenoid, the spring force.

When zero "seat-leak" is required, the material of either the seat or stem is usually synthetic rubber, the other being metal. This is commonly called a "soft" seat or "bubble tight" valve implying complete shut-off.

When a slight leak is allowable, nylon and teflon plastics are sometimes used, as complete shut-off would be difficult to maintain with these materials. The pressure drop and spring force are contributing factors in maintaining a zero or minimum seat leak.

The orifice seating surface (poppet type) should have the contact area at a minimum without being injurious to the soft resilient member.

In a "metal to metal" seat valve, both parts are metal, and result in a nominal seat-leak. Usually the valve stem has a conical shape (needle) which is ground to a fine finish and aids in keeping this seat leak at a minimum. A lapping operation is sometimes performed to further decrease this leak.

In this type of construction an increase in pressure drop will result in an increase in seat-leak, not a decrease as sometimes assumed.

(To Be Continued)

Slide Film Covers Electrical Components

TECUMSEH, Mich. — Tecumseh Products Co. has recently completed a new slide film on "The Electrical Components of a Hermetic Compressor."

This film is designed for use by the Tecumseh district offices at meetings held by the local Tecumseh authorized wholesaler or RSES groups. The film identifies and outlines the use of a wide variety of electrical components now used on hermetic compressors.

The film will be supplemented later in the year with another film covering trouble shooting and actual field service of electrical parts.

During March, the film was shown in El Centro, San Pedro, and Fresno, Calif; Wilkes Barre, Pa.; and Salina, Kan. Other showings were scheduled as follows:

April 5—Tucson, Ariz.; April 7-8—Erie, Pa.; April 11—Santa Barbara, Calif.; April 12—Santa Maria, Calif.; April 13—Long Beach, Calif.; April 25—San Diego, Calif.; April 26—Los Angeles.

May 4—San Gabriel, Calif.; May 9 — Sacramento, Calif.; May 18—Reno, Nev.; June 3—Little Rock, Ark.

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Jas P Marsh Corporation
Simply attach bracket and insert ball into socket. Adjust to best reading angle.
NEW!
5½ feet of tubing

An all-purpose, all-quality thermometer for any and every frozen food cabinet... that's the

MARSH *Universal*

FROZEN FOOD CABINET THERMOMETER

Here is Marsh quality, accuracy and beauty at a moderate price. Small and compact, but with a bold, easy-reading 2½" dial having increased scale divisions in the working range. Accurate to plus or minus one division over entire scale—not affected by ambient temperature.

Its white enamel case with nickel plated ring is an adornment to any cabinet. Note ease of installation pictured above ...also unique ball and socket joint providing adjustment to best reading angle. Thermometer is standard with 5½ feet of nickel plated capillary tubing. Write or, better still,

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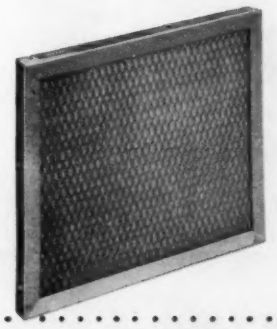


SKUTTLE-AIRE FILTERS

Due to the inherent electrostatic qualities of the filtering media, the Skuttle-Aire Permanent Filters will remove particles as small as pollen from the air. They are easily cleaned with cool tap water to maintain maximum filtering efficiency. No oiling necessary! Skuttle-Aire Filters provide the most economical method of continuous air filteration for home comfort and cleanliness. Use a 1" filter for central air conditioners, a ½" filter for room air conditioners.

SKUTTLE FILTER GAGE

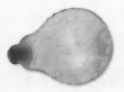
A common cause of inefficiency in air conditioners is clogged filters. This filter gage automatically indicates need for servicing.

HYGROMETER

This precision-made Swiss instrument will accurately indicate the percentage of relative humidity in the air. Ideal in determining the "comfort zone" moisture for heating and cooling.

NEW VALVE AND FOAM GLASS FLOAT ASSEMBLY

Skuttle's new patented valve, the A-1106-9 contains no movable parts. It features a chrome plated valve jet for positive shut-off and an adjustable, reversible rubber valve seat which acts as a splash shield. This valve can be used efficiently with foam glass, copper or glass floats, as desired.



SKUTTLE FLOATS

These glass, copper and twin copper floats are available with the new patented Skuttle Valve, A-1106-9.

MODEL 1800 CONDENSATE REMOVER

Skuttle has designed this unit especially for the re-evaporation of condensate water in conjunction with refrigerated dispensing equipment. The Model 1800 fits inside the cooler on a louvered rack and is operated by the passage of warm air from the compressor, over the pan and plates. A standard unit uses 8 Vapoglas plates in a coated, galvanized steel pan. Under normal operating conditions, the unit will evaporate approximately 1 pint of water in 24 hours.

Write our Engineering Dept. if you have a condensate water problem.

Skuttle MANUFACTURING CO.

MILFORD, MICHIGAN

'Service Dept. Our Best Future Salesman'

Dispatcher Is Focal Point for Implementing Functions of Successful Service Dept.

NEW ORLEANS — How Gotham Equipment Corp., New York City, set up its service department so that it pays dividends as an adjunct to sales and through contributing to the company's overhead burden and profit structure was described recently by Richard A. Rauch, Gotham sales manager.

Rauch described his year-old service operation at the 14th annual convention of the National Commercial Refrigerator Sales Association. Here is his story:

The service department is physically located in an office in our plant. The service manager directs the service department through the dispatcher who schedules the servicemen; the bookkeeper who records the necessary documents, and a parts department where the servicemen draw their material from the warehouseman.

Service Manager's Duties

The service manager has complete over-all authority for the operation of the department. Our service manager is a man of broad experience and promotes good customer relations. We use him to sell service contracts and maintenance work.

His duties consist of being responsible for all situations in the field and office. He assigns all duties to personnel and follows through to see that they are carried out.

He evaluates each man's ability and assigns the job each particular serviceman is best suited for. He has the responsibility of establishing prices for services and parts. He is responsible for the purchasing of all equipment used by the service department and for furnishing estimates on service contracts.

He checks all time sheets, service reports, and invoices. He is ably assisted by the service supervisor who checks on the serviceman ESPECIALLY on callbacks.

It is our company policy that whenever two calls are received within a period of one week for the same problem the service supervisor personally checks out the job.

He is available to handle the most difficult service jobs. He assumes the responsibility for the service department after the completion of installations and inspects them prior to the service department accepting the responsibility. He also sets controls and checks on the proper functioning of the equipment.

Dispatcher Has Separate Phone for Incoming Calls

The dispatcher is actually the main focal point for implementing the functions of the service department. This is accomplished by having two telephones on his desk: One of which is used only for incoming service calls thereby insuring that the customer will reach the dispatcher without too much delay. A card system is kept up-to-date on all contracts for quick reference listing in detail all equipment on contract.

A map is on the wall in front of the dispatcher so that he can readily ascertain which serviceman can best handle the incoming service call. We are fortunate in having our plant centrally located in our service area.

Information Obtained By Dispatcher

When a service call comes in, the dispatcher enters the following information in a permanent book. The time the call was received, the customer's name, address, and telephone number, and whether it is a contract, C.O.D., or open account.

He obtains information as to the nature of the service complaint so as to ascertain if a serviceman is required or if he can remedy the situation from information given to him by the customer.

Examples of the frequent telephone cures are checking the fuses and defrost cycles.

He analyzes the nature of the call so that he can advise the serviceman what parts might be necessary to complete the call. He routes it to the nearest available serviceman in the area.

This information is given to the serviceman who immediately enters the same information on a numbered service form with which he is provided and for which he is accountable.

It is the duty of the serviceman to complete the call as promptly as possible and then to fill out the numbered service order form.

He lists the time he received the call, the time he completed the call, parts he actually used, and whether a contract, C.O.D., or open account and indicates the charges for the services rendered.

He also details the work performed and the condition of the equipment. This service order form is then signed by the customer.

In addition to returning the numbered service order form to the office at the end of the day, he must turn in his time sheet and an inventory control slip showing the parts used during the day so that they can be replenished in his truck stock.

Each serviceman has a price list with him so that he is as familiar as possible with our pricing structure.

Personnel Selected To Assure Good Customer Relations

We attempt to set the proper climate for the service department by having personnel of the type which promotes good customer relations.

Our servicemen are furnished with a company uniform, and a company truck which we believe helps our service and also helps in the sale of equipment.

We also feel that there is no substitute for experienced personnel. Our service department is completely divorced from the installation department and separate records are kept.

While we welcome service calls on a C.O.D. and open account basis, our main goals are service contracts, which we find profitable.

We stress a system of preventive maintenance inspections and our maintenance contracts are all inclusive in that the responsibility rests solely on us so that there will be no misunderstanding as to parts, prices, etc.

Offers Around-the-Clock Service Every Day

We maintain a 24-hour—7-day—365 days per year service. We stagger the men on duty and use an answering service on the hours the dispatcher is not available.

Our service contract calls for quarterly check-ups at which time a complete going over of the equipment is accomplished. In the case of water systems, chemicals are used to prevent contamination.

Steam cleaning is used where necessary. This measure not only gives our men a chance to fill in during the slow time, but it keeps them available when we are busy.

Our trucks are equipped with both parts and tools. We stress the use of good tools.

Our parts inventory and truck inventory are checked monthly.

We also have a stand-by service for store openings. We feel this accomplishes two goals: First, it creates goodwill between the customer and the company. A stand-by serviceman wearing his uniform at a store opening is good advertising for potential customers. Second, the stand-by serviceman on the premises at the store opening is able to make final adjustments to compensate for the actual peak loads the equipment is subject to during that trying time.

Once a month we have a training course in which the service manager, the service supervisor, and the dispatcher as well as our servicemen attend. Ideas are exchanged by all of our men. Suppliers frequently send representatives who explain new equipment.

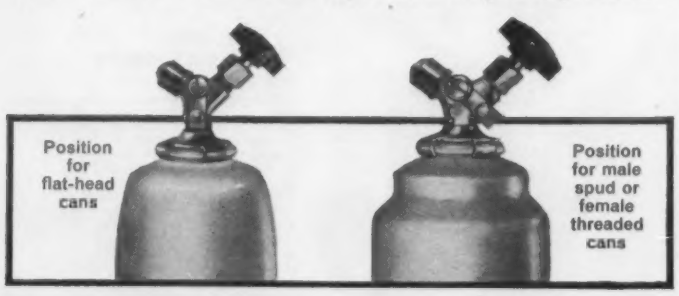
In addition to refrigeration problems, electrical problems are also discussed as we find many of our service calls are electrical in nature.

In summary: We feel that our service department is our best future salesman.

When you tap a can . . .
stop fumbling
with loose parts

Use a new Imperial
Universal Tap-A-Can Valve

No fumbling . . . no chance of misplacing rings with this new valve. Simply adjust guide and ring holder, tighten valve on can and attach charging line. Dispense any part of the refrigerant and save the rest. When can is empty, remove valve and use again. Fits *all* refrigerant cans (Can-O-Gas, Charge-A-Can and others). Ask for Imperial No. 331-C Universal Tap-A-Can Dispensing Valve.



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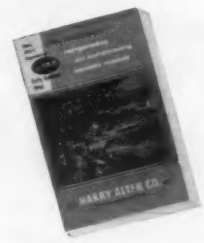
Wholesale Only — We sell *you . . . not* your customer. All orders filled with careful speed.



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FREE PARKING—
FAST SERVICE

Export Opportunities Listed by BDSA

Turkish Gov't Seeking Machinery for Producing Absorption Refrigeration Units

WASHINGTON, D. C. — Machinery for manufacturing absorption type refrigerating units for household refrigerators is sought by the Turkish government, the Business & Defense Services Administration of the U. S. Dept. of Commerce reports.

Bids are invited until April 24 by Teknik Ithalat ve Imalat Kol. Sti., Fevzi Pasa Buvari, No. 12 in Izmir, Turkey. Amount of credit is $14,000 through U. S. Development Loan Fund No. 11.

Desired are special machine for gilling tubes with fins, filling station for charging finished unit with ammonia water and hydrogen gas, vacuum pump, containers for distilled and chromated water, mixing tank, electric fluid pump with all pipe work, pressure gauges, laboratory control equipment and chemicals for starting the operation.

Also desired are a special hand operated machine for cold bending tubes with work bench and assembly fixture, oxyacetylene welding outfit with two welding torches, six tubes filled with hydrogen gas, electric welding head with gyroscopic suspension and thermic control, electrically driven air compressor for operating three paint spray guns, three spray guns and 20-liter containers, complete set of small portable electric tools and hand tools for manufacturing the refrigerating unit.

The BDSA also has reported these other export opportunities:

Germany: Dual duct air mixing units for air conditioning equipment is sought by Rud. Otto Meyer, importing distributor, 162 Tilsiter Strasse, Hamburg-Wandsbek.

Refrigeration machines from the smallest unit to turbo compressors, all air heating and cooling equipment, ventilators of light construction, and accessories are desired by Kessler & Luch K.G., an importer, wholesaler, and manufacturer of air conditioning equipment at 31 Rodheimerstrasse, Giessen Lahn.

Kuwait: Al Omar Mechanical Engineering Co., Post Box 392, seeks a comprehensive line of air conditioning equipment suitable for local power supplies. Additional data may be obtained from the Trade Opportunity Section, Trade Development Div., Bureau of Foreign Commerce, U. S. Dept. of Commerce, Washington 25, D. C.

Saupe Economiserbau Walter H. Saupe of 86 Unterlaender Strasse, Stuttgart-Zuffenhausen, wants any heating elements and air conditioning systems which are of higher technical quality than those manufactured and sold in Germany.

Norway: Direct purchase and an agency for residential and industrial air conditioning units is sought by Alfsen og Gunderson, importing distributor and manufacturers' agent at 2b, Prinsensgate, Oslo.

Greece: The Directorate of Fisheries, Ministry of Industry, Athens, invites bids until May 17 for design, supply, installation, and erection of a fish cold storage plant at Piraeus fish wharf. Project is estimated to cost $150,000. More information available at Bureau of Foreign Commerce Trade Development Div.

A manufacturing firm is interested in a licensing agreement and purchase of room coolers in kit form for assembly and casing in Greece. For more information, contact Michael Soteriades, Apt. S-109, 800 Fourth St., S.W., Washington 24, D. C.

Italy: A. G. Frauenfelder & Co., 42 Via Generale Orsini, Naples, seeks illustrative brochures and price quotations from manufacturers of freezing and refrigeration equipment for bulk freezing and refrigerated warehouses.

The company is reportedly planning to build a cold storage plant of about 10,000 cu. meters at Casoria, near Naples. The plant would be divided into 30 or 40 compartments for both quick freezing and storing fruits and vegetables.

Industrial and domestic air conditioning apparatus and refrigeration equipment of both high and low speed is desired by Impianti Ing. Bergamini & Co., 51 Via G. Avezzana, Rome. The firm would serve as agent for the equipment or manufacture it under license.

Also seeking air conditioners, without specifying types or sizes wanted, are Saeed ibn Ghadran, P. O. Box 131, Damman, **Saudi Arabia,** and African Marketing Corp., P. O. Box 2763, Dar es Salaam, **Tanganyika.**

Refrigerators, to the tune of at least 1,000 per year, are required by Antoine N. Anid, Emir Bechir Ave., Lazarieh Bldg., A-1, Beirut, **Lebanon.**

Unspecified refrigeration equipment is sought by Societe Technicauto, 1 Avenue Kerreddine Pacha, Tunis, **Tunisia.**

A Foreign Service dispatch from Rotterdam indicates a possible market for freezing equipment in **Netherlands** bakeries. With a severe labor shortage in industrial areas there are many industries that are looking for labor saving devices, the dispatch said. The bakery industry is apparently already searching for means to solve labor problems.

A. F. Ioffe, Russian Leader In Thermoelectric Refrigeration, Dead

USSR — Prof. A. F. Ioffe, head of the Russian Institute for Semiconductors, died in October at the age of 80, reports from the Soviet Union indicate.

Ioffe was well known as probably the world's foremost authority on thermoelectric refrigeration. In 1958, at the Brussels Fair, he exhibited one of the first operating thermoelectric refrigerators ever shown.

there is a substitute for experience

STRAIN-O-KAP® by WATSCO

the modern refrigerant metering device

A strainer-capillary assembly for replacing original capillary tubes and expansion valves.

Strain-O-Kap is complete and eliminates guesswork, cutting or adjustments. Simply install it and forget it.

Use Strain-O-Kaps on sealed or open units.

Refrigerators 1/20 to 1/5 hp inclusive.

Water Coolers 1/4 hp and less.

Freezers 1/3 hp or less.

PART NO. S-1
FOR SOLDER CONNECTION

PART No. S-2
FOR FLARE CONNECTION

STRAIN-O-KAP SENIOR Part No. SR-6 for any installation ranging from 1/3 hp to 1 hp inclusive. Just one Strain-O-Kap Sr. kit may be adapted to any one of 72 applications. For low, medium, or high temperatures systems using refrigerants 12 or 22.

For additional information, ask your wholesaler or write to Department N-41

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Removes MORE SCALE per Dollar Spent!

VAPCO SCALE REMOVER

The activated acid in powder form containing inhibitor, wetting agent and algaecide for a COMPLETE cleaning job under the most severe conditions. Easy on galvanize — safe for equipment. Keeps head pressure down — efficiency UP! 10 to 50 pound drums with "Tel-Action" pH indicators.

VAPCO-HIB

Make your own cleaner with VAPCO-HIB. Added to muriatic acid, VAPCO-HIB increases the acid action, yet provides outstanding protection to metals including galvanize. Supplied in 8 and 32 ounce bottles and bulk.

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Complete literature on request or see your dealer TODAY!

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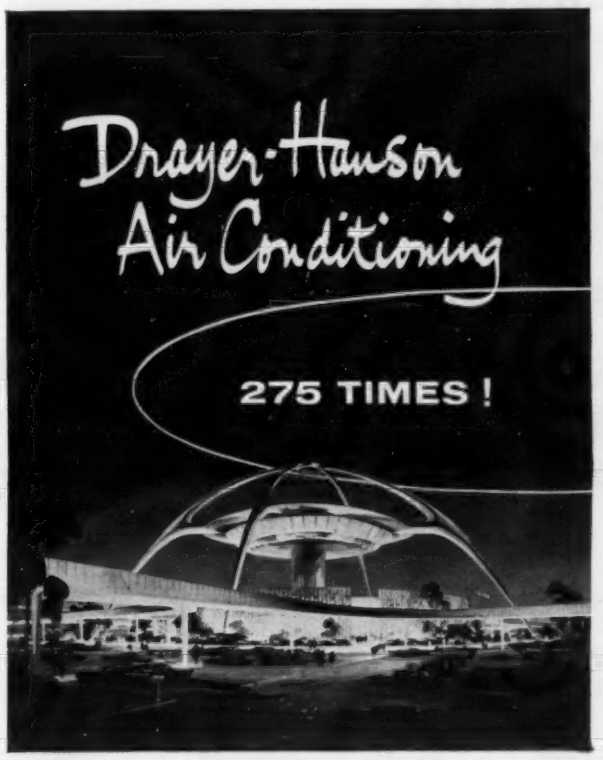

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(Brochure GAC 150.01 tells you why)

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TECH CENTER

by FRANK J. VERSAGI

Servicemen Talk Back (3)

The serviceman is almost always on the receiving end.

Business papers, consumer periodicals, manufacturers, housewives, wholesalers all have taken their pokes at him, both justly and not. The serviceman is told he is discourteous, untrained; he doesn't read manufacturers' literature.

What does the serviceman say to all this? How does he feel about his relationship with his customers, his sources of supply, the manufacturers?

Over a period of months, the NEWS has asked servicemen the country over for their thoughts. Tape-recorded random comments and discussions among servicemen themselves are included in this report.

Every time they come out with a new model, for the first two or three months it's a do-it-yourself kit.

You may be handling that thing for six months before you get any service information on it. By then you've already figured out how to fix everything on it.

It seems very stupid for a manufacturer to change from what is already a proved, successful product. It doesn't seem to make financial sense.

Well, I think that they wait until they hear from us for a few months before they know what to put in the service bulletins on a new product.

I want to say something. What do you need Refrigerant-22 for in air conditioning?

You having trouble with it?

Not any more; we refuse to use it.

A few bright manufacturers have quit using 22 after a few years' experience with it, even in freezers.

Maybe 22 is all right with expansion valves, but it's a mess with cap tubes.

Why are you having trouble with 22? Because they aren't putting sufficient strainers in?

They run too hot.

—the pressure's way up there.

. . . they varnish up.

We have had a lot of freezer trouble in our area. We need better and bigger strainers.

One man, in particular, Tom Farabaugh of Polar Refrigeration, Detroit, had quite a bit to say. It is obvious from his comments that he has given more than casual thought to the problems of the serviceman.

"Let me ramble a bit, and give you ideas as they occur to me," Tom said in preamble. The rest of this article contains his ramblings.

Sees Servicemen Refusing To Do In-Warranty Service

"I wouldn't be surprised if more and more manufacturers find us servicemen refusing to perform in-warranty service. . . . The customer should have a warranty; I'm not against the extended warranty, but there has to be a better way to get us our money faster.

"The way it is now, we don't have any direct contact with the manufacturer. I replace a compressor, send the notice in, get a credit from the manufacturer, but my money goes to the distributor, who may not pass it along to me for months. . . . At least I assume the distributor gets the money from the manufacturer fairly soon, but he needs it just as I do, so it's natural for him to hold on to it as long as he can.

"Why can't we set it up so that the service company bills the manufacturer direct, and why can't the manufacturer send a check right out instead of a credit—after all, a piece of paper work is a piece of paper work.

Charges Never Cover Expenses

"Another reason that we may be losing interest in in-warranty work is that the charges never cover our expenses. Oh, there is one company that we do business with which pays us what it actually costs us to do a job; all the others have some flat fee—$35, or $50, or $45. These companies pay you the same thing whether you replace a compressor in a convenient outdoor slab job or a miserable attic job where it takes three times as long to do the job.

"We want to make money on warranty work; we're not in business to give our service away. . . . A 5-ton replacement is usually a two-man job for 4 hours. For 8 man-hours, we get maybe $40. . . . Same unit burns out in a roof—it's a three-man job (two on the roof, one on the ladder)—the unit has to be triple-evacuated and flushed and charged—we still get $40.

Following Up Jobs Done by Newcomers Is Problem

"Following up on jobs installed by heating people is a real problem. Manufacturers, in their natural desire to get sales, are not doing the job of educating these newcomers in the art of air conditioning. . . . Customers are not getting what they deserve. . . . A little thing like replacing the heating grilles with adjustable ones for winter and summer changeover. . . . They seldom make the proper adjustment in fan motor or dampering to allow correct heating and cooling operation.

"Why not a speed reducer with clearly marked positions which the customer can set himself. . . . We have several customers who are willing to pay for us to do the seasonal adjustment of fan speed and the like. . . .

"Some manufacturers supply a drier with a new compressor; others don't—some servicemen will not change a drier if it is not supplied with the compressor, so the manufacturer is hurting himself.

"A remote air conditioning job costs between $80 and $90 for a compressor change; on a roof, the cost comes nearer to $105. . . .

"I can't understand why more manufacturers are getting interested in attic units. . . . Those things are almost impossible to service and maintain. . . . They have a high incidence of service, too.

"Since air conditioning units are so similar, really, wouldn't it be possible for ARI or somebody to prepare a standard installation manual which would apply to all makes. . . . Also, it would be a good idea to mail the customer a standard book of instructions **after** the unit has been in a while. . . . He'll read it, just like we read the owner manuals we get with our new cars.

"This manual could have such things as the effect of furniture placement and drapes on performance. . . . It could explain how to operate the unit and how to look for simple troubles before calling the serviceman.

"Manufacturers should get tough with people who don't return warranty cards. Why not even void the warranty if the card isn't returned? After all, they only have our word for it if we say a unit is in-warranty and no card has been registered. If they made us responsible for the return of the cards, things would be much better. . . .

Labeling Electrical Characteristics

"I hope the various cities and manufacturers get together soon and decide how they are going to label electrical characteristics. Amps, horsepower, watts—they're all used and they cause us trouble in getting permits based on the actual size of the units.

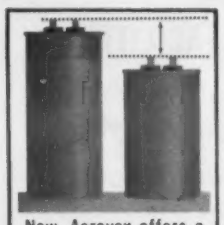
Farabaugh talked about a few other things, but these recorded thoughts were the items really on his mind during his interview with the NEWS.

"An unsolicited testimonial" as they say in advertising circles. Tom said all these things without any prompting.

"I really believe that a frank discussion of some of the disagreements between us and manufacturers and between us and the distributors is needed. When we leave everything unsaid for fear of antagonizing a friend, the irritations just build up and the relationship eventually deteriorates anyway," Farabaugh concluded.

AEROVOX
CAPACIBILITY*

BREAK
THE SPACE BARRIER
with Compact
AEROVOX MOTOR-RUN
CAPACITORS



Now, Aerovox offers a savings of approximately 15% in volume for space-savings requirements with no sacrifice in performance or reliability.

Designed to meet today's needs for space-saving, Aerovox Motor-Run Capacitors offer a new high in performance with a new low in height. These units, available in voltage ratings of 165, 236, 370, 440 and 660 VAC in a wide range of capacitances, are furnished in drawn metal cases with double-lock seams and are hermetically sealed for continuous duty operation. Aerovox Motor-Run Capacitors are supplied with double blade universal terminals. New one-piece dual cup bushings meet all UL physical requirements . . . prevent terminal twisting and increase assembly strength. Exclusive Aerovox "Weatherguard"† 80-147 UL approved case finish provides maximum protection against rust and corrosion.

AEROVOX MOTOR-START CAPACITORS
Aerovox offers a complete line of top-quality Motor-Start Capacitors featuring an exclusive electrolytic formula rigidly controlled for purity to assure dependable performance and long service life. Vibration protection against broken internal connections is assured by special sealing compound used to imbed section in case. Positive seal guards against adverse environmental conditions. Phenolic and aluminum cases available.

*CAPACI-BILITY
An Aerovox characteristic. Capability to design, develop and manufacture capacitors to best meet customers' requirements.

Prompt delivery schedules in production quantities.

WRITE FOR COMPLETE DETAILS.

†Trademark

AEROVOX CORPORATION

NEW BEDFORD, MASS.

DO YOU QUESTION THE RATINGS OF THE COMPRESSORS YOU USE?

LET US RUN RATING TESTS FOR YOU.

FAST, ACCURATE CALORIMETRY

McCORMACK ENGINEERING

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To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING, HEATING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on residential, commercial, and industrial air conditioning, heating, and refrigeration for contractors, dealers, consulting engineers, distributors, servicemen, and manufacturers. Read the industry's only newspaper every week—you'll profit by it—only $6.00 per year, 52 issues (U.S. and Canada). Foreign: $10 per year.

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New Airtemp Products--

(Continued from Page 1, Col. 3)

heating and cooling department, said models 1212 and 1216 condensing units are suitable for the suburban type commercial buildings which have been in vogue the past few years.

"One of the units will serve the requirements of a one to three-story building and our matching air handling units have been designed for either vertical or horizontal installation," Regan reported.

The model 1212 has a 114,000 Btuh capacity when used with the Chrysler 1412 cooling coil, which delivers 4,000 cfm, it was stated.

"If zone control is desired, the 1212 condensing unit can be matched with two of our 1408-03 cooling coils, or other Chrysler coils," Regan emphasized.

"The model 1216 condensing unit can be matched with the 1416 cooling coil, which results in 154,000 Btuh and 6,000 cfm, respectively. Paired with two 1489 cooling coils, the 1216 delivers 166,000 Btuh."

Both of the condensing units "use a 5-cylinder compressor, operate at 120°F outside temperature, and will run when voltage has been reduced as much as 10%," the announcement said.

"All safety controls are reset at the thermostat, which eliminates the need to crawl or climb to the outside location of either condensing unit in the event of compressor overload, power failure, or a high or low pressure situation.

"Both condensing units have controls to assure operation down to 55° outside temperature and accessory cold weather controls permit operation down to 0° by dampering air and not overcharging the unit with refrigerant.

"The bulkhead design permits normal unit operation if service is required and a built-in refrigerant subcooling circuit eliminates the soldering of lines together. This latter feature reduces compressor suction gas temperature and ample subcooling is provided over the entire operating range.

"A separate receiver and strainer-drier is standard on both the 1212 and 1216, as is a hot gas by-pass which permits light load operation without coil freeze-up."

Designed for 'Simple Field Modification'

Regan said both condensing units were designed for simple field modification to perform efficiently as heat pumps. The units come with plugged tees for distributor lines for heat pump conversion.

Chrysler now has eight air-cooled condensing units and six water-cooled condensing units available. Capacities range from 22,000 to 420,000 Btuh.

Regarding the heat pump, Thomas W. Kirby, vice president-marketing for Airtemp, said the new split system model 3204 has a 33,000 Btuh cooling capacity and 32,000 Btuh heating capacity. It is designed for residential and medium-sized commercial applications.

A feature of the heat pump is a checklight, a bulb which lights on the indoor thermostat if the unit's compressor is not operating. This device is a protection for the customer, it was pointed out.

"In the past, utility companies have reported instances of strip heaters providing all the heat when the compressor was not operating. If the customer does not realize his compressor is shut down, it results in an excessive heating bill. A reset feature is also included on the thermostat," Kirby explained.

Kirby said supplementary heat is available for the 3204 in 4.8 kilowatts up to 14.4 kw. The strip heaters are automatically energized in 4.8 kw steps, which is claimed to assure the lowest power demand and the best temperature control.

Supplementary heat is turned on by outdoor thermostats during the heat pump's defrost cycle to prevent cold air from blowing into the air conditioned space.

Indoor Blower Can Operate Independently

"It is possible to independently operate the indoor blower of the split system unit for air circulation. This feature facilitates stopping the outdoor blower during the heat pump's defrost cycle for more efficient defrosting," it was stated.

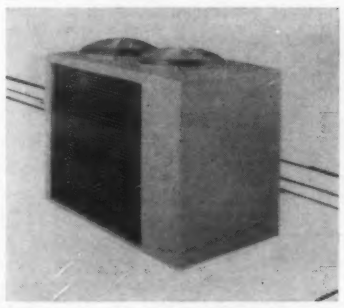
"During the summer the 3204 will operate in 120° outside temperature and in the winter it will efficiently operate at -10°."

A double solenoid reversing valve is located in an insulated compartment in order to prevent heat loss during the heating cycle.

Other features on the 3204 include special expansion valves for both heating and cooling cycles; an insulated refrigerant line; and a subcooling pass which allows the indoor unit to be installed any height above the outdoor unit.

A measuring device automatically begins the defrost cycle and a Klixon control attached to the liquid line terminates the cycle when the coil is completely defrosted.

The 3204 is matched with a new model 1454 evaporator coil unit which can be installed vertically for an upflow application or horizontally when used with ductwork and horizontal free air delivery.



TWO new air-cooled condensing units have been added to the 1961 line of air conditioning products manufactured by Airtemp Div. A 10-hp model 1212 and a 15-hp model 1216 are designed for split system installations which require up to 114,000 Btuh and 154,000 Btuh, respectively.

In addition to the 3204, Chrysler has a 3-hp "all-in-one" package heat pump and a 5-hp split system heat pump.

Air Handling Units Range From 2,000 to 15,000 Cfm

The seven basic models of air handling units have capacities ranging from 2,000 through 15,000 cfm.

R. B. Stotz, general manager for the Applied Machinery & Systems Dept. at Airtemp, said the new units are built in two sections, giving them flexible installation design.

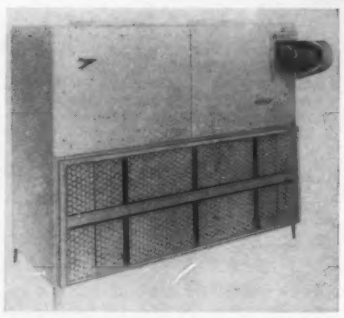
All AH-series have a fan section and a coil-filter section, and the units are designed for either horizontal or vertical floor installation. The coil section can be turned end for end in the field or mounted horizontally adjacent to the fan section.

According to Stotz, the fan section is built with a square cross section which allows the unit to be rotated for a choice of discharge. The two sections facilitate entry through narrow accesses during installation.

All coils, either direct expansion or water, may be removed on the job or they can be installed after the unit is in place. Tapped openings for venting water coil headers are provided.

Either direct expansion or water coils may be used with the AH series and all coils can be installed after the unit is in place, or may be removed on the job.

Additional coils, such as steam heating coils, can be added with a slide-in coil arrangement. Filters are removable from either end of the units and a choice of permanent or removable type is available.



SEVEN air handling units with capacities ranging from 2,000 through 15,000 cfm have been introduced by Airtemp. These units are divided into a fan section and a coil-filter section.

Stotz emphasized that the units can be supplied to an order or may be altered in the field. The air handling units are models AH-05; 07; 09; 13; 17; 21; and AH-25.

The remote fan coil units are designed for commercial, industrial, or residential apartment buildings and provide year-round air conditioning for multi-room applications. Capacities range from 200 to 700 cfm.

Each of the five basic models may be selected for either of four applications, two floor models and two ceiling mounts.

One of the floor model choices is a cabinet type, which "simplifies installation in existing structures and saves valuable space." The other floor model is a recessed type designed for permanent "hidden" installations. The latter installation is suitable for air conditioning halls, corridors, and similar areas where space is limited, or where traffic flow is particularly heavy.

The two ceiling units consist of a cabinet and a recessed choice. The recessed application is used in a closet, or above a drop ceiling or decorative ceiling cove where such concealment is possible.

These units replace Chrysler's 1500 series, which consisted of three models in the 200 to 400 cfm range. The new units permit either vertical or horizontal installation as opposed to the vertical limitations of the 1500 series.

Fedders Distributor Gives 6% Discount On Pre-Season Sales

MASPETH, N. Y.—One of the tasks facing air conditioner distributors every year is stirring their dealers into action at the earliest possible date, Fedders Corp. points out.

A successful means for accomplishing this goal has been developed by Igoe Bros., northern New Jersey distributor for Fedders, with the firm's "Take Six" promotion.

The promotion kicked-off with a 1,500-line ad in the March 10 *Jersey City Journal,* with the appeal, "Earn 6% Interest . . . better than money in the bank."

The interest was "earned" in the form of an extra discount off special pre-season sales prices. Thus, a model sale-priced at $200 was offered for $188 cash, or a down payment of $9.40 was credited at $10.

Igoe enlisted 36 dealers in one New Jersey county in the promotion. These dealers moved their Fedders display to the front of the store, gave additional window space to Fedders models, and put up pennants and window streamers announcing the "Take Six" offer.

Igoe provided the dealers with reprints of the newspaper ad and display material.

While sales results were not reported, dealers were said to be enthusiastic about the promotion. A spokesman for Igoe said that the primary objective, to get dealers moving, had been accomplished.

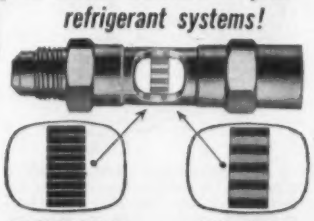
Material for this promotion is being made available by Fedders to all its distributors.

For Your Reprint Copy

"Short, Short Course in Air Conditioning Fundamentals." By D. C. Schaffer. Mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.
Only 25¢ each.

Simplest, most economical way to detect moisture in your refrigerant systems!

Positive Sealing
LIQUID EYE®
INDICATOR
featuring the built-in
MOISTURE-REACTOR



No more guesswork about the condition of your F-12 and F-22 refrigerant systems. No installation problems either.

Now you can get both in the same unit
...LOWEST COST MOISTURE REACTOR PROTECTION PLUS ALL THE PROVED LIQUID EYE FEATURES!

CONTACT YOUR WHOLESALER TODAY

IT'S GOOD

The MOISTURE-REACTOR is composed of alternate, permanent and changing (Reactor) color bars. When all the bars appear the same color (green)—it's good—there's no moisture in system.

IT'S BAD

If moisture enters the system, every other color bar changes from green to yellow—then it's bad—the dehydrator should be replaced. When the system is moisture-free again, the Reactor color bars will change back to their original solid green color.

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ALLIN MANUFACTURING CO.
410 NORTH HERMITAGE AVE. • CHICAGO 22, ILLINOIS

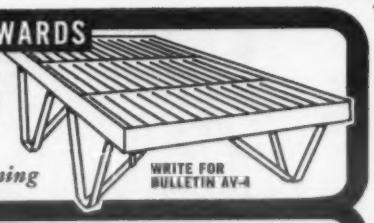
OVER 1,000,000 LIQUID EYES SOLD TO DATE!

ENGINEERED BY EDWARDS

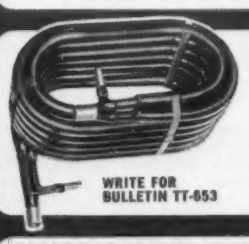
AIRVEC

The completely silent Air Cooled Condenser

Never needs cleaning



WRITE FOR BULLETIN AV-4



WATER COOLED COAXIAL CONDENSERS

Domestic and sea water models

Reduce costs 40% . . . Reduce condenser water 35% . . . Reduce refrigerant charge . . . Stabilize capillary performance . . . Compact shapes.

WRITE FOR BULLETIN TT-653

MOTORIZED VALVES

For chilled water cooling systems and for heating systems . . . 100% positive shut-off . . . Compact . . . Low cost . . . Low Voltage . . . No current draw when open.

WRITE FOR BULLETIN M V-1

EDWARDS ENGINEERING CORP.

938-23 Alexander Ave., Pompton Plains, N. J.

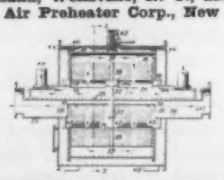
TEmple 5-2808

"One of the nation's largest manufacturers of Residential and Commercial Boilers, Baseboard and Steel-Fin Radiation, Motorized Valves, Air and Water-Cooled Refrigerant Condensers."

PATENTS

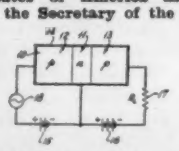
Week of Dec. 6 (Concluded)

2,963,279. HEAT EXCHANGER. John C. Vickland, Wellsville, N. Y., assignor to The Air Preheater Corp., New York.



1. Regenerative heat exchanger apparatus or the like having an annular rotor including concentric inner and outer cylindrical shells joined by radially extending partitions to form a series of circumferentially adjacent sector shaped compartments adapted to carry a mass of regenerative heat transfer material; axially spaced inlet and outlet ports in the inner rotor shell aligned with each of the sector shaped compartments; a central duct extending axially through the inner rotor shell. . . .

2,963,630. SURFACE TREATMENT OF SEMICONDUCTIVE DEVICES. John W. Irvine, Jr., Belmont, Mass., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy.

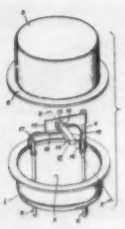


1. A semiconductor device having a junction between p- and n-type materials, and a protective dielectric coating of an unhydrolyzed titanium ester on the surface of and enclosing said device for combination with the adsorbed moisture on such surface and protection against contamination by external moisture reaching said surface.

2,963,631. ARRANGEMENT FOR INCREASING HEAT DISSIPATION IN SEMI-CONDUCTOR-DEVICE. Richard F. Stewart, Dallas, Texas, assignor to Texas Instruments Inc., Dallas, Texas.

3. In a transistor arrangement, a metallic heat dissipating element, an insulating washer overlying said heat dissipating element, a junction transistor bar fixed along its long dimension to the surface of said washer remote from said element, and electrical leads connected to said transistor bar and insulated from said metallic heat dissipating element.

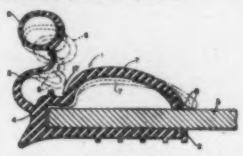
2,963,632. CANTILEVER SEMICONDUCTOR MOUNTING. Rudolph R. Kilian and William P. Barnett, Syracuse, N. Y., assignors to General Electric Co.



1. A semiconductive device comprising an insulating supporting member having a plurality of conductive leads extending therethrough, a spring member connected to one of said leads and extending substantially perpendicularly therefrom, a bar of semiconductive material having well-defined end portions and an intermediate portion, means for rigidly mounting one of said end portions to said spring member and for flexibly connecting each of said other portions to a respective lead.

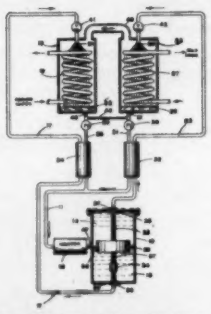
Week of Dec. 13

2,963,754. REFRIGERATOR DOOR SEAL. Eugene T. Herman, St. Marys, Ohio, assignor to The Goodyear Tire & Rubber Co., Akron, Ohio.



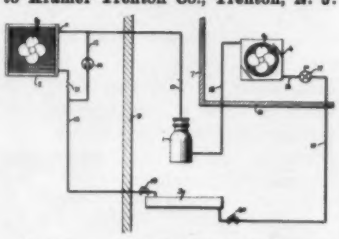
1. A gasket for attachment to a refrigerator door to seal the margin of the door against the cabinet comprising an elongated unitary strip of resilient material of similar cross-sectional shape throughout its length, said shape having a base portion to secure said strip to the door, a vertical portion rising upwardly from and attached to one end of said base portion, a joining portion attached to the upper end of said vertical portion extending substantially parallel to and overlying said base portion for a short distance. . . .

2,963,875. HEAT PUMP. Lindley E. Mills, 518 Pinehurst Blvd., Kalamazoo, Mich.



1. The method which includes: heating a negative conjugate system comprising a high-boiling component and a low-boiling component under a separation pressure greater than the total vapor pressure of the heated system to a separation temperature at which the system comprises a high-boiling conjugate solution impoverished with respect to the low-boiling component and a low-boiling conjugate solution enriched with respect to the low-boiling component; separating the conjugate solutions from one another at the separation temperature and pressure; decreasing the pressure on the separated conjugate solutions to a pressure below the separation pressure. . . .

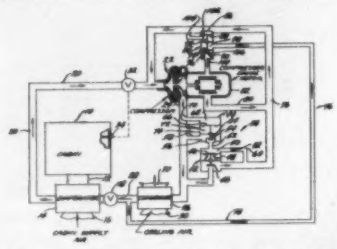
2,963,877. MEANS FOR CONTROLLING HIGH SIDE PRESSURE IN REFRIGERATING SYSTEMS. Hyman Malkoff, Levittown, Pa., and Otto J. Nussbaum, Trenton, N. J., assignors to Kramer Trenton Co., Trenton, N. J.



1. In a refrigerating system including operatively interconnected compressor, condenser, evaporator, receiver, and a refrigerant pressure reducing device positioned in operative relationship to the evaporator inlet, means for automatically preventing the refrigerant pressure in the high side of the system adjacent the said pressure reducing device from falling below a predetermined minimum, regardless of ambient temperature at the condenser or heat load in the evaporator, by controlling the level of the liquid refrigerant in the condenser and thus regulating the area of effective heat transfer surface inside the condenser, said means comprising. . . .

2,963,878. COMPRESSOR SURGE PREVENTION AND DRIVE MOTOR COOLING SYSTEM. John C. Beggs, Manchester, and Fred M. Rosenbush, West Hartford, Conn., assignors to United Aircraft Corp. East Hartford, Conn.

2. In a refrigeration system wherein there is substantial variation in refrigerant flow, the combination of a centrifugal compressor connected in the system to accommodate vaporized refrigerant under variable flow conditions, an electric drive motor for



the compressor having a fluid-tight casing, a recirculation conduit connected between the outlet and inlet sides of the compressor, valve means in said conduit adapted to provide for recirculation flow of the vaporized refrigerant whereby to supplement the main flow through the compressor as required to prevent compressor surge. . . .

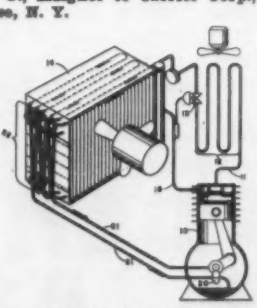
Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D. C.

2,963,882. RADIAL AIR FLOW REFRIGERATION EVAPORATOR WITH MEANS FOR HEATING THE DRIP PAN. Hyman Malkoff, Levittown, Pa., and George Frie and Daniel E. Kramer, Trenton, N. J., assignors to Kramer Trenton Co., Trenton, N. J.

1. An evaporator coil unit adapted for embodiment in low temperature refrigeration systems, comprising, a casing for the coil, said casing having top and back, a movable drip pan for receiving melt from the coil during defrosting cycles of the system, a tube circuit adapted for heating the drip pan during such cycles, the said tube circuit being located at the bottom of the coil, the drip pan being hinged to the casing and adapted to be swung open for providing access to the interior of the casing and coil and to be swung closed to bring it into operative position pressing against the tube circuit, and means for securing the drip pan in closed position.

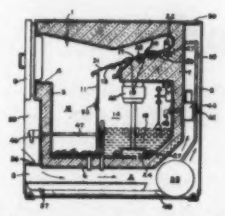
2,963,896. LUBRICANT COOLING SYSTEM. Everett P. Palmatier, Sovay, N. Y., assignor to Carrier Corp., Syracuse, N. Y.



In a refrigeration system including a compressor, a lubrication system for the compressor, a condenser, refrigerant expansion means, and an evaporator comprising tubular means having substantially parallel portions interconnected by end portions to form a path of flow for the refrigerant, means for cooling the lubricant including a line, forming a part of the lubrication supply circuit, having a portion in heat transfer relation with the end portions of the evaporator.

2,963,985. AUTOMATIC ICE MAKER. Henry J. Lowenthal, Louisville, Ky., assignor to General Electric Co., a New York corporation.

3. An ice maker comprising a cabi-



net including insulated walls forming an ice making and ice piece storage compartment having an access opening at the front thereof, a machinery compartment in said cabinet below said ice making compartment, said cabinet having walls defining a recess in the front wall of said cabinet below said access opening and above said machinery compartment, said recess including a perforated bottom wall between said recess and said machinery compartment and forming a portion of the top wall of said machinery compartment through which water dripping from ice pieces during removal thereof through said access opening flows into said machinery compartment. . . .

(To Be Continued)

ZONE REPRESENTATIVE WANTED

We are looking for a firm or individual to represent us in California and adjacent Western area. Must have complete background and experience in Refrigerated Display Case sales. Ability to do complete store layout is an absolute requisite. Duties consist of working with present and establishing new distributors for our line of Super Market Equipment which is as complete as any other manufacturer offers. Remuneration tops. Write complete background to Sales Manager,

SHERER-GILLETT COMPANY
MARSHALL, MICHIGAN.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications $10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

ESTABLISHED MANUFACTURER'S representative serving O.E.M. accounts in Illinois, Iowa, and Wisconsin, needs additional line to replace one lost through sale of company. BOX A6757, Air Conditioning, Heating & Refrigeration News.

SERVICE ENGINEER with 10 years of very diversified experience covering all types of equipment from ultra low temperature to commercial heat pumps. Three years' experience with manufacturers in production, production control, service literature, etc. Electrical knowledge excellent, also common sense. Age 31, married, Desire Midwest. BOX A6758, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

SALESMEN WANTED for wholesale refrigeration and air conditioning parts supply business in New York City. Must be familiar with products and capable of excellent, efficient work. Salary and commission. All inquiries confidential. CONTINENTAL DISTRIBUTORS, 345 Nassau Avenue, Brooklyn, New York, STagg 2-7817.

AIR CONDITIONING, wholesale sales manager with proven sales and engineering experience with heating and packaged cooling. Will offer salary, bonus, and expenses. No overnight traveling necessary. All inquiries held confidential. Send brief resume to well established York distributor. THE HATTENBACH COMPANY, 4700 Prospect Avenue, Cleveland 3, Ohio.

AIR CONDITIONING installation and serviceman. At least 5 years' experience (Carrier experience preferred). Heating and controls experience desirable. Steady employment at union scale. Excellent opportunity for right man. Send complete resume to C. L. MAHONEY CO., 438 Forest St., Kalamazoo, Michigan.

REPRESENTATIVE WANTED. See our display advertisement in this issue for California representative. SHERER-GILLETT COMPANY, Marshall, Michigan.

FIELD REPRESENTATIVE: Applicant must be a mechanical engineer with practical experience. Also, the ability to handle groups involved in trade association work. Job available immediately. Send resume and photo to: BOX A6746, Air Conditioning, Heating & Refrigeration News.

EXPERIENCED SALES and servicemen positions available in major cities throughout eastern half of U. S. If progress on your present job is slow, this is an opportunity to advance. Must have at least five years' experience servicing air conditioning and warm air equipment and contacting building maintenance management. Ground floor opportunity to become service manager with national manufacturer now expanding operations. Unlimited opportunity. Salary and generous profit sharing plan. Send resume and snapshot. BOX A6750, Air Conditioning, Heating & Refrigeration News.

EXPERIENCED FACTORY representative wanted for St. Louis area by foremost manufacturer of refrigerated display and storage equipment. Liberal draw against commission. Give resume. Reply confidential. BOX A6751, Air Conditioning, Heating & Refrigeration News.

EXPERIENCED REFRIGERATION engineer required by leading manufacturer of commercial food market refrigeration equipment. Age 25 to 35. Must be willing to travel and relocate possibly in southeastern U. S. Only experienced need apply to BOX A6754, Air Conditioning, Heating & Refrigeration News.

EQUIPMENT WANTED

COMPRESSORS AND parts, new or used and repairable; Brunner, General Electric, Copelametic, Mills, etc. Give full details as to model number, horsepower, quantities, etc. Write UNITED REFRIGERATION CORPORATION, 514 W. 12th St., Los Angeles 15, California.

EQUIPMENT FOR SALE

ATTENTION REFRIGERATION Servicemen. Send for catalog listing values in refrigeration and air conditioning parts, relays, capacitors, compressors. Savings up to 50%. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

UNITED CONTROL and Relay Repair Co. Domestic controls, relays, defrost timers, new controls and relays in stock. Prompt mail order service. 151 E. 126 Street, New York 35, N. Y.

BUSINESS OPPORTUNITIES

WANTED — DISTRIBUTORS, dealers, agents, for our different circulating water treatment, Air-Con Emulsion Sand-Banum — The simple, safest method of keeping scale, rust and corrosion out of open type circulating systems. Removes scale and rust already present. Excellent discounts available. Write for information. Air-Con can add to your profits through repeat sales! AMERICAN SAND-BANUM COMPANY, INC., P. O. Box 4, Merrick, New York.

WANTED — GROUP of well financed sales executives; many years' experience, excellent connections with gas utilities, jobbing houses, larger trade members across Canada, desire Canadian distributorship for manufacturers of items which sell on repeat basis through these channels. Will buy and sell on own account. Please write HOWARD SIMPSON, 2000 Young Street, Toronto 7, Ont.

AIR CONDITIONING contracting company for sale. Uninterrupted $59,000 annual average earnings record past 15 years. Sale price of total operation including complete sheet metal shop, furniture, fixtures, trucks and inventory for only a fraction of one year's average earnings. Los Angeles area. BOX A6740, Air Conditioning, Heating & Refrigeration News.

WHOLESALE REFRIGERATION and heating supply business for sale in North Central state. Established 27 years. Doing profitable business. Owner wishes to retire. Will sell at inventory cost plus fixtures and equipment. Can finance responsible party. Will lease or sell building. BOX A6756, Air Conditioning, Heating & Refrigeration News.

SALES REPRESENTATIVES — Water treatment controls, chemical water treatments for cooling water, heating and process systems. Interested in men contacting consulting and specifying engineers, contracting firms, industrial and commercial users, schools, churches, public building supervisors. Good commissions, steady repeat business. Write giving qualifications: BOX A6759, Air Conditioning, Heating & Refrigeration News.

MISCELLANEOUS

AIRCRAFT AND mechanic available Midwestern states. Pay for mechanic time only. Service all types refrigeration and air conditioning equipment — will fly to service anywhere in United States. ILLINOIS REFRIGERATION SERVICE COMPANY, 5301 W. Chicago Ave., Chicago, Ill., AUstin 7-7080.

PROFITS MISSING? Only by close attention to all phases of management can the dealer-contractor be assured of making a decent profit today. A brand-new "Management Guide" will show you how others have successfully accomplished this. Combined efforts of many experts have produced this fact-filled book. 120 pages, 8½ x 11, loose-leaf binder, 96 illustrations, $18. Order your copy today from BUSINESS NEWS PUBLISHING CO., Dept. B, 450 W. Fort St., Detroit 26, Mich.

ARI Report on Unitary Air Conditioner Sales for 1960

ARI Unitary Air-Conditioner Section's Report Of Manufacturers' Shipments January-December, 1960 (12 Months)

Total Shipments (Number)

Description of Product	(By Condenser-type) Air or Evaporatively Cooled	Water Cooled	Total	% Change from 1959
AIR CONDITIONERS (except window and wall types)				
SELF-CONTAINED (Integral-Condenser Type) (1) — No. of Companies 1960 — 45, 1959 — 49				
Horizontal				
Under 27,000 Btu/hr	19,547	114	19,661	+ 7
27,000-32,999 Btu/hr	2,121	13	2,134	+ 24
33,000-41,999 Btu/hr	18,896	156	19,052	+ 4
42,000-53,999 Btu/hr	3,716	23	3,739	+ 75
54,000-64,999 Btu/hr	912	102	1,014	+ 21
65,000-96,999 Btu/hr	133	170	303	
Other Than Horizontal				
Under 27,000 Btu/hr	—2	12	10	— 95
27,000-32,999 Btu/hr				
33,000-41,999 Btu/hr	5	5,480	5,485	— 12
42,000-53,999 Btu/hr	....	....	....	— 4
54,000-64,999 Btu/hr	23	8,093	8,116	
65,000-96,000 Btu/hr	51	6,205	6,256	— 16
All				
97,000-134,999 Btu/hr	168	5,022	5,190	— 24
135,000-184,999 Btu/hr	51	2,645	2,696	— 28
185,000-249,999 Btu/hr	68	2,165	2,233	+ 14
250,000-319,999 Btu/hr	18	1,343	1,361	— 11
320,000-379,999 Btu/hr	22	917	939	— 9
380,000 Btu/hr and over	34	657	691	+128
Total	**45,763**	**33,117**	**78,880**	— 1
REMOTE-CONDENSER TYPE (2) — No. of Companies 1960 — 14, 1959 — 14				
Under 27,000 Btu/hr	....	....	....	
27,000-32,999 Btu/hr	329	....	329	— 36
33,000-41,999 Btu/hr		....		
42,000-53,999 Btu/hr	303	....	303	— 44
54,000-64,999 Btu/hr	1,060	....	1,060	+ 36
65,000-96,999 Btu/hr	1,573	....	1,573	+ 14
97,000-134,999 Btu/hr	1,073	....	1,073	+ 17
135,000-184,999 Btu/hr	962	....	962	+ 23
185,000-249,999 Btu/hr	490	....	490	+ 65
250,000-319,999 Btu/hr	213	....	213	
320,000-379,999 Btu/hr	210	....	210	+ 95
380,000 Btu/hr and over	75	....	75	
Total	**6,288**	....	**6,288**	+ 15
REFRIGERATION CHASSIS (3) — No. of Companies 1960 — 6, 1959 — 10				
Under 27,000 Btu/hr	1,237	....	....	
27,000-32,999 Btu/hr	....	....	....	
33,000-41,999 Btu/hr	....	234	1,471	— 33
42,000-53,999 Btu/hr	....	....	....	
54,000-64,999 Btu/hr	....	....	....	
65,000-96,999 Btu/hr	....	....	....	
97,000 Btu/hr and over	....	....	....	
Total	**1,237**	**234**	**1,471**	— 33
YEAR-ROUND AIR CONDITIONERS (except heat pumps)				
SELF-CONTAINED AND REMOTE-CONDENSER TYPE (4) — No. of Companies 1960 — 10, 1959 — 9				
Under 27,000 Btu/hr	439	28	467	— 1
27,000-32,999 Btu/hr	....	....	....	
33,000-41,999 Btu/hr	....	....	....	
42,000-53,999 Btu/hr	722	8,987	9,709	— 3
54,000-64,999 Btu/hr	....	....	....	
65,000-96,999 Btu/hr	....	....	....	
97,000 Btu/hr and over	714	....	714	
Total	**1,875**	**9,015**	**10,890**	— 3
HEAT PUMPS (except room air conditioners)				
SELF-CONTAINED (5) — No. of Companies 1960 — 27, 1959 — 19				
Under 27,000 Btu/hr	9,530	....	9,530	+ 10
27,000-32,999 Btu/hr	1,700	....	1,700	+ 42
33,000-41,999 Btu/hr	12,950	....	12,950	+ 18
42,000-53,999 Btu/hr	1,757	....	1,757	+ 51
54,000-64,999 Btu/hr	1,627	....	1,627	
65,000-96,999 Btu/hr	277	....	277	+113
97,000 Btu/hr and over	....	....	....	
Total	**27,841**	....	**27,841**	+ 22
OTHER THAN SELF-CONTAINED (6) — No. of Companies 1960 — 22, 1959 — 17				
Under 27,000 Btu/hr	46	....	46	— 7
27,000-32,999 Btu/hr	1,479	....	1,479	
33,000-41,999 Btu/hr	3,072	....	3,072	— 14
42,000-53,999 Btu/hr	3,136	....	3,136	— 4
54,000-64,999 Btu/hr	3,468	....	3,468	+ 42
65,000-96,999 Btu/hr	1,759	....	1,759	+ 50
97,000 Btu/hr and over	254	....	254	
Total	**13,214**	....	**13,214**	+ 8
SPLIT SYSTEMS				
AIR CONDITIONING CONDENSING UNITS (7) — No. of Companies 1960 — 54, 1959 — 55				
Under 27,000 Btu/hr	20,571	14	20,585	+ 18
27,000-32,999 Btu/hr	19,147	27	19,174	+ 15
33,000-41,999 Btu/hr	55,424	410	55,834	+ 1
42,000-53,999 Btu/hr	28,955	524	29,479	+ 45
54,000-64,999 Btu/hr	27,245	657	27,902	+ 7
65,000-96,999 Btu/hr	12,254	366	12,620	+ 10
97,000-134,999 Btu/hr	5,350	104	5,454	+ 21
135,000-184,999 Btu/hr	1,995	19	2,014	+278
185,000 Btu/hr and over	698	36	734	
Total	**171,639**	**2,157**	**173,796**	+ 14
AIR CONDITIONING COILS WITH BLOWER (8) — No. of Companies 1960 — 47, 1959 — 41				
Under 27,000 Btu/hr			825	— 34
27,000-32,999 Btu/hr			693	— 26
33,000-41,999 Btu/hr			7,235	+ 11
42,000-53,999 Btu/hr			8,165	+ 57
54,000-64,999 Btu/hr			8,006	— 10
65,000-96,999 Btu/hr			8,085	+ 19
97,000-134,999 Btu/hr			5,091	+ 6
135,000-184,999 Btu/hr			1,753	+389
185,000 Btu/hr and over			1,971	
Total			**41,824**	+ 19
AIR CONDITIONING COILS WITHOUT BLOWER (9) — No. of Companies 1960 — 46, 1959 — 45				
Under 27,000 Btu/hr			16,669	+ 34
27,000-32,999 Btu/hr			10,021	+ 11
33,000-41,999 Btu/hr			53,726	+ 22
42,000-53,999 Btu/hr			20,631	+ 17
54,000-64,999 Btu/hr			24,502	+ 33
65,000-96,999 Btu/hr			7,434	0
97,000-134,999 Btu/hr				
135,000-184,999 Btu/hr			1,101	+261
185,000 Btu/hr and over				
Total			**134,084**	+ 23
GRAND TOTAL (excluding coils)	**267,857**	**44,523**	**312,380**	+ 9

ARI UNITARY AIR CONDITIONER SECTION'S CONDENSED SUMMARY BY SIZE Of Manufacturers' Shipments

FOURTH QUARTER (October-December, 1960)

Size	—By Condenser Type— Air or Evaporatively Cooled	Water Cooled	Total Units	% Change from 1959
Under 27,000 Btu/hr	7,674	16	7,690	— 10
27,000-32,999 Btu/hr	4,156	1	4,157	+ 14
33,000-41,999 Btu/hr	14,960	889	15,849	— 17
42,000-53,999 Btu/hr	5,633	1,301	6,934	+ 38
54,000-64,999 Btu/hr	4,896	1,436	6,332	— 12
65,000-96,999 Btu/hr	3,093	1,223	4,316	+ 14
97,000-134,999 Btu/hr	1,868	959	2,827	+ 26
135,000-184,999 Btu/hr	871	393	1,264	+ 82
185,000-249,999 Btu/hr	296	436	732	+ 32
250,000-319,999 Btu/hr	54	271	325	— 8
320,000-379,999 Btu/hr	36	90	126	— 49
380,000 Btu/hr and over	18	176	194	+185
Total	**43,555**	**7,191**	**50,746**	— 1

JANUARY-DECEMBER, 1960 (12 months)

Size	—By Condenser Type— Air or Evaporatively Cooled	Water Cooled	Total Units	% Change from 1959
Under 27,000 Btu/hr	51,046	175	51,221	+ 11
27,000-32,999 Btu/hr	24,571	41	24,612	+ 15
33,000-41,999 Btu/hr	90,966	6,267	97,233	— 3
42,000-53,999 Btu/hr	37,874	5,248	43,122	+ 55
54,000-64,999 Btu/hr	34,341	12,989	47,330	+ 6
65,000-96,999 Btu/hr	16,597	6,895	23,492	+ 6
97,000-134,999 Btu/hr	7,636	5,126	12,752	0
135,000-184,999 Btu/hr	3,008	2,664	5,672	+ 17
185,000-249,999 Btu/hr	1,256	2,201	3,457	+ 30
250,000-319,999 Btu/hr	231	1,343	1,574	— 5
320,000-379,999 Btu/hr	232	917	1,149	0
380,000 Btu/hr and over	109	657	766	+142
Total	**267,857**	**44,523**	**312,380**	+ 9

This condensed summary by size includes shipments of:

1. Air conditioners (except window and wall types)—with or without condensers and refrigeration chassis.
2. Year-round air conditioners—with or without condensers.
3. Heat pumps (except room air conditioners)—self-contained and other than self-contained.
4. Split systems—air conditioning condensing units **only**. It does **not** include shipments of air conditioning coils with or without blowers.

EXPORT SHIPMENTS—The total figure includes export shipments of 1,272 units for the fourth quarter and 8,530 units for January-December, 1960.

* * *

Reporting Companies (59)	1	2	3	4	5	6	7	8	9
Airtemp Div., Chrysler Corp.	X	X			X	X	X	X	X
Albion Div., McGraw-Edison Co.	X				X	X	X	X	X
Amana Refrigeration, Inc.	X				X		X	X	X
American Furnace Co.			X				X		X
American-Standard Air Conditioning Div.	X	X	X	X	X	X	X	X	X
American-Standard Industrial Div.	X	X							
Arkla Air Conditioning Corp.				X					
Armstrong Furnace Co.	X						X	X	X
Carrier Corp. (incl. all mfg. div.)	X	X	X	X	X	X	X	X	X
Cleveland Steel Products Corp.	X						X	X	X
Cobell Industries, Inc.						X	X	X	X
Coleman Co., Inc., The	X						X	X	X
Columbia Specialty Co., Inc.							X	X	X
Crane Co., Plumbing, Heating & Air Cond. Group	X	X					X	X	X
Curtis Mfg. Co.	X	X					X	X	X
Fedders Corp.	X				X		X	X	X
Forston Co., The	X				X	X	X	X	
Fraser & Johnston Co.					X		X	X	X
Frick Co., Inc.	X	X							
Friedrich Refrigerators, Inc.							X	X	X
Gaffers & Sattler Div., Utility Appliance Corp.	X			X	X		X		X
General Electric Co.	X	X	X		X	X	X	X	X
Goettl Brothers, Metal Products, Inc.	X			X	X		X		
Hall-Neal Furnace Co.	X						X	X	X
Heat-X, Inc.							X		
Heil-Quaker Corp.	X				X		X	X	X
Holly-General Co.	X						X	X	X
Hupp—Perfection Div.	X				X	X	X	X	X
Hupp—Typhoon Air Conditioning Div.	X			X	X	X	X	X	X
Hupp—Typhoon Heat Pump Div.					X	X			
International Heater Co.						X	X	X	X
International Metal Products Div.	X			X	X	X	X	X	X
Iron Fireman Mfg. Co.	X						X	X	
Janitrol Heating & Air Conditioning Div.	X						X	X	X
Laurel Products Corp.	X				X	X	X		
Lennox Industries, Inc.	X				X	X	X	X	X
Majestic Co., Inc., The	X				X		X	X	X
Mathes Co., The	X				X	X	X	X	X
Melchior, Armstrong, Dessau Co., Inc.	X			X					
Miami Products, Inc.						X	X	X	X
Mueller Climatrol Div., Worthington Corp.	X				X	X	X	X	X
National Thermatic Corp.							X	X	X
Olsen Mfg. Co., The C. A.	X			X			X	X	X
Peerless Corp.					X	X	X	X	X
Rheem Mfg. Co.	X				X		X	X	X
Southwest Mfg. Co.							X		
Stewart-Warner Corp., U. S. Machine Div.	X					X	X	X	X
Thatcher Furnace Co.	X						X	X	X
Therm-Air Mfg. Co.	X	X					X	X	
Trane Co., The	X	X			X	X	X	X	X
Tuck-aire Furnace Co.	X				X		X	X	X
United States Air Conditioning Corp.	X	X					X	X	X
Welbilt Air Cond. & Htg. Corp. (beg. with Oct.)	X	X					X	X	X
Westinghouse Electric Corp.	X	X		X	X	X	X	X	X
Williamson Co.	X						X		
Worthington Corp.	X	X	X				X	X	X
Wright-Temp Mfg. Co., Inc. (beg. w/Sept.)	X						X	X	X
York Div. of Borg-Warner Corp.	X		X		X	X	X	X	X
Zink Co., John (beginning with July)							X	X	X

For reporting category numbers, refer to shipment summary at left.

ARE you in need of a "just right" man to fill a slot in your organization—the man you are looking for will be reading the

NEWS' CLASSIFIED ADS

SMACNA Meets April 24-26, Plans Forum on Air Conditioning

LOS ANGELES—Forums on ventilating and air conditioning, business management, and labor relations are among events scheduled for the annual convention of the Sheet Metal & Air Conditioning Contractors' National Association.

The convention will be held April 24-26 at the Ambassador hotel here. It will open Monday, April 24, at 10 a.m. with a general business session.

A business management forum will be conducted Monday afternoon. Subjects to be covered are management—perpetuation or liquidation; insurance; and contractor-banker relationships.

Tuesday morning will be devoted to a labor relations forum and Tuesday afternoon there will be an open discussion period on labor matters.

The ventilating and air conditioning forum is set for Wednesday morning, April 26. Scheduled are reports of low pressure manual committee and high pressure manual committee, a report on aluminum for ducts, and a presentation on applying acoustical linings. An architectural sheet metal forum will be held at the same time.

A Wednesday afternoon session on planning for the future will cover new machines, lease-purchase agreements, amortization, and straight lease (trucks and automobiles).

Social events include a visit to Disneyland Sunday, April 23; a reception; and the annual banquet Wednesday evening.

Stewart-Warner Names Star Salesmen

LEBANON, Ind. — Stewart-Warner Corp.'s Heating & Air Conditioning Div. has announced the winners of the 11-month district sales manager's Star Salesman's Contest.

J. G. Brownless, a veteran of 19 years in the division's service department, celebrated his first year as a district sales manager in central Indiana by producing the greatest sales increase over quota.

Brownless received a Chevrolet Impala Convertible.

Other winners in order of standing were: Wilbur Fites, Ohio territory; Richard M. Fuller, northern Indiana; Henry G. Gable, Pennsylvania; Maurice J. Smith, northern New Jersey; Robert J. Skarda, Long Island; Robert J. Shue, southern Indiana and Ohio.

Hold Oil Burner Service Course At Night In St. Joseph, Michigan

ST. JOSEPH, Mich.—An oil burner operation and servicing course, which will also cover some phases of installation, will be offered by the Oil Heat Institute of Western Michigan, in conjunction with the Oil Heat Institute of America, from April 11 through May 9, 1961.

The course will run two nights a week for nine sessions, from 7 to 9:30 p.m., at the St. Joseph Public High school, Lakeview Ave., St. Joseph, Mich., and is open to all who work in the oil heating industry. Tuition is $6.

The schedule for the sessions is as follows:

April 11—"Fuel Oils and Their Application to Domestic Burners," R. Gilmartin, Gulf Oil Corp.; April 13—"Nozzles and Nozzle Servicing," Delavan Mfg. Co.; April 18—"Oil Burner Pumps, Tanks, and Piping," S. A. Ferraro, Sundstrand Hydraulics, Div. Sundstrand Corp.; April 20—"Oil Burner Pumps, Tanks, and Piping," George Brinkerhuff, Webster Electric Co.

April 25—"Combustion Chambers and Installation Practices," W. B. Forrest, Boston Machine Works; April 27—"Combustion Instrument Testing and Draft," W. B. Forrest, Bacharach Industrial Instrument Co.; May 2—"Domestic Oil Burner Controls and Control Servicing," L. R. Hammerstrom, Minneapolis-Honeywell Regulator Co.; May 4—"Domestic Oil Burner Controls and Control Servicing," G. A. Williams and D. Spicer, General Controls Co.; May 9—"Operation and Servicing of Low Pressure Oil Burners," Edward Garrison, Stewart-Warner Corp.

Carroll Drops Airco, Continues as Mfr. Rep.

ALBUQUERQUE, N. M.—W. M. Carroll has announced his resignation as president of Airco Supply Co. here, air conditioning and refrigeration supplies and equipment wholesaler, due to other interests.

Carroll said he will confine all his activities in the future to W. M. Carroll & Co., manufacturers' representative.

He added that Airco Supply will continue as in the past, with John I. Gaona, formerly vice president and general manager, as the new president.

FHA--

(Continued from Page 1, Col. 2)

ARI symbol or AGA label on Unitary Air-Conditioners shall also be considered as evidence of such compliance.

"The above changes are a relaxation of the Minimum Property Standards and are therefore effective concurrently with General Revision No. 3."

The deleted paragraph a. had said that unitary air conditioning equipment, not including room air conditioners or heat pumps, shall be listed in the ARI directory and display the ARI symbol of certification.

In the new paragraph, the phrase "evidence of compliance with the above" refers to the requirement that refrigeration systems and components shall comply with American Standard Safety Code for Mechanical Refrigeration ASA B9.1 and the applicable standard of the ARI.

ARI standard 210 covers unitary air conditioning equipment, and standard 250 covers unitary heat-operated air conditioning equipment. Scope of the standards are "factory-made residential, commercial, and industrial air conditioners or matched assemblies."

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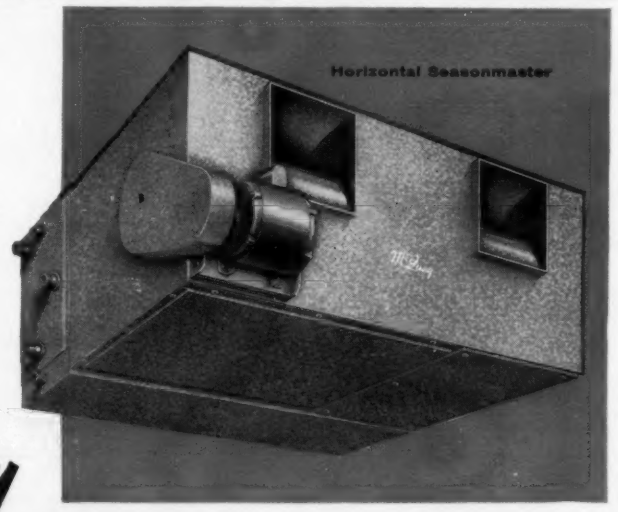
Farrell in his new position will be in charge of furnace and air conditioning product, product development, and related training and service programs. He was product manager in charge of heating products.



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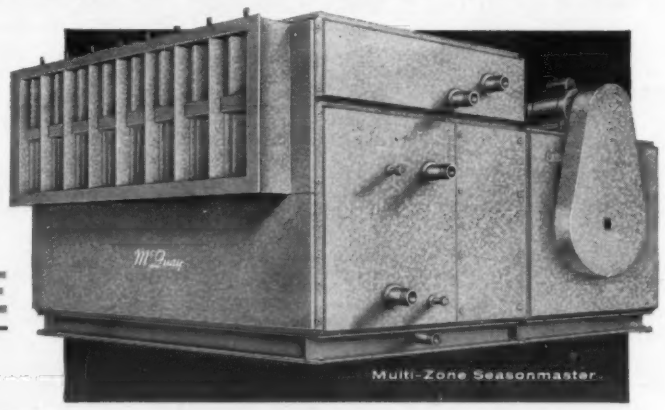

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